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Appl. No. 09/63,856; Filed: Aug 4, 2000
Dkt No. 1744.063,0003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

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UNIVERSAL FREQUENCY
TRANSLATION (UFT)
MODULE

PORT 3

**CONTROL** 

**SIGNAL** 

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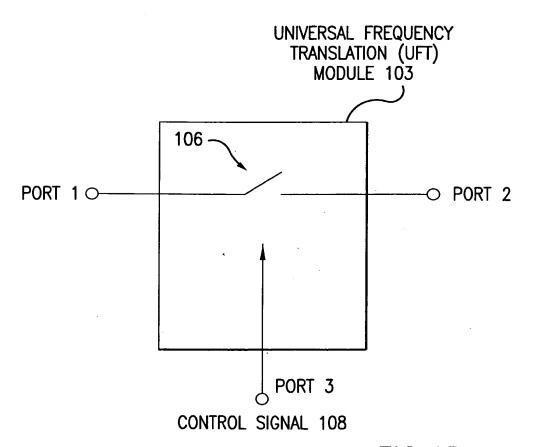
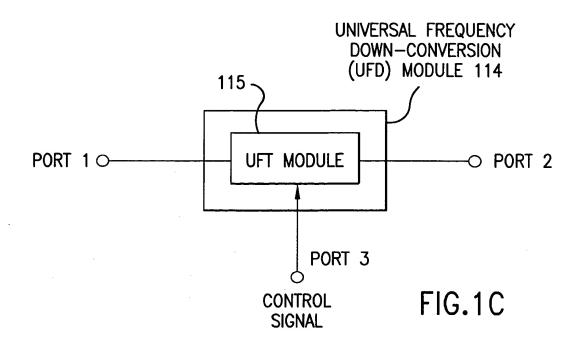


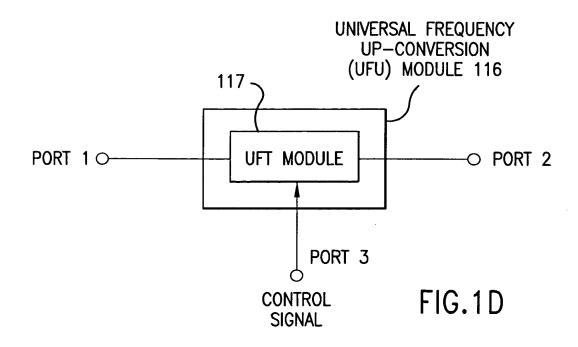
FIG.1B

FIG.1A

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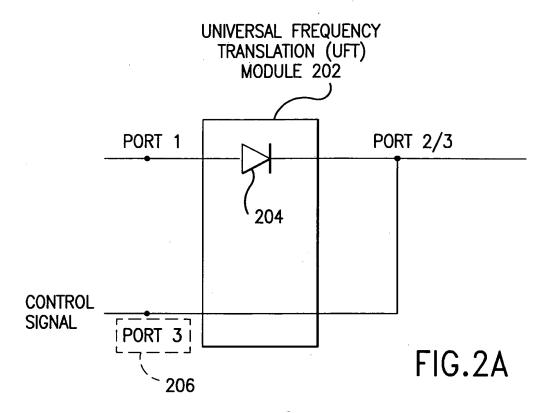
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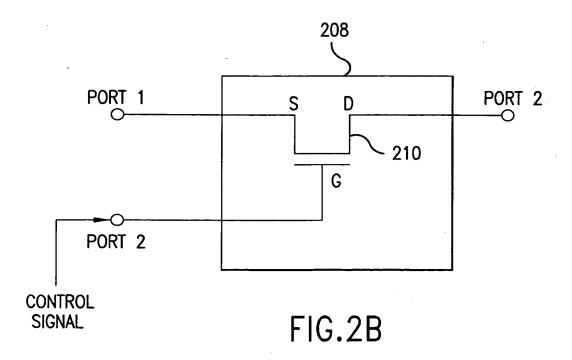




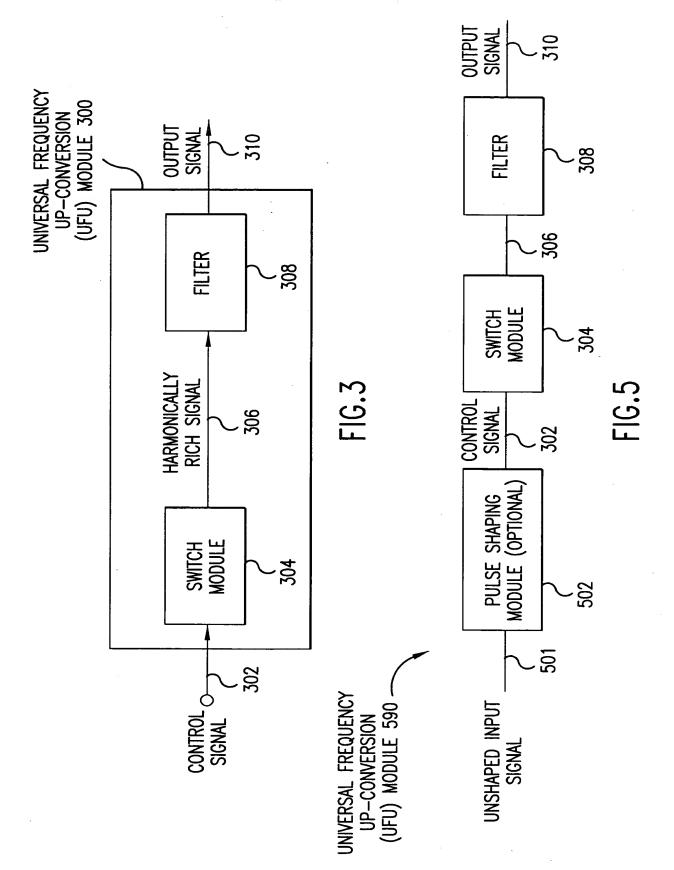
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Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using

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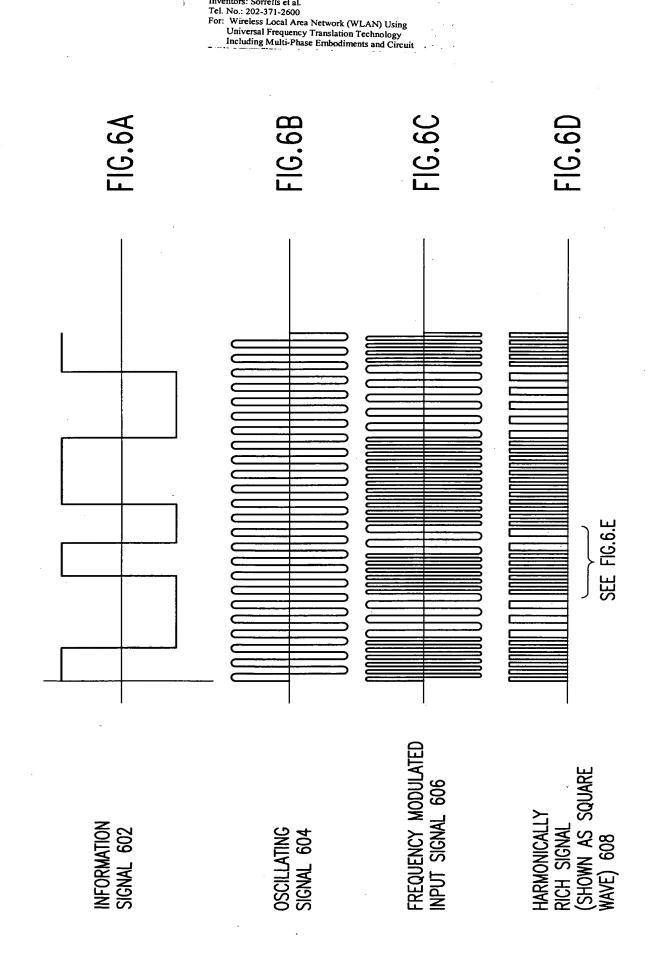
Including Multi-Phase Embodiments and Circuit OUTPUT SIGNAL FIG.4 FILTER 308 306 UNIVERSAL FREQUENCY UP-CONVERSION (UFU) MODULE 401 — H 450 SWITCH PORT PORT 2 BIAS SIGNAL 405

CONTROL PORT 3 | SIGNAL

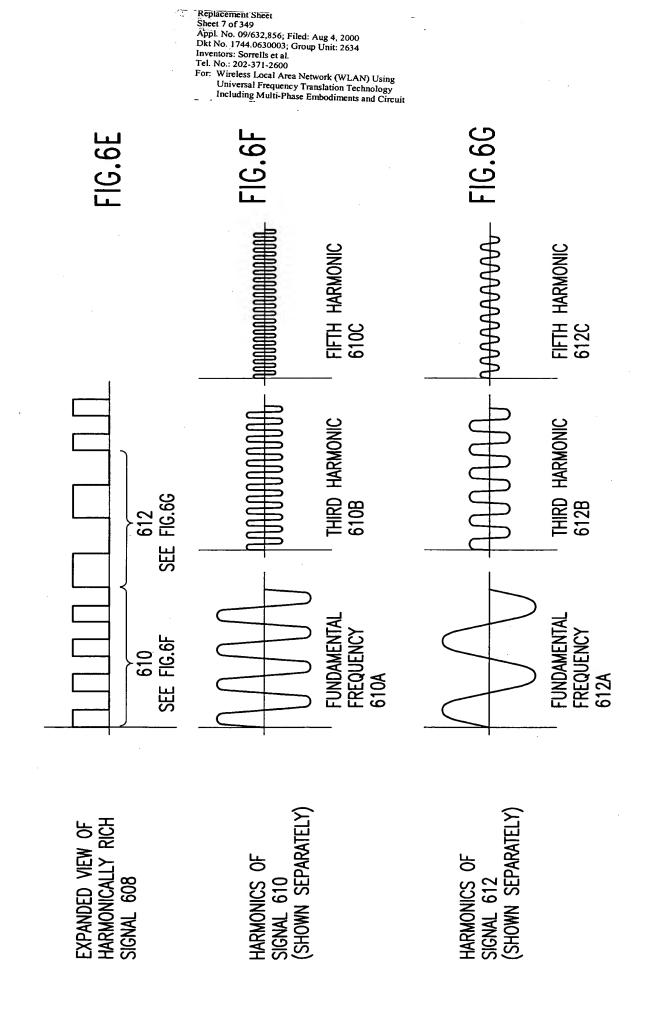
302

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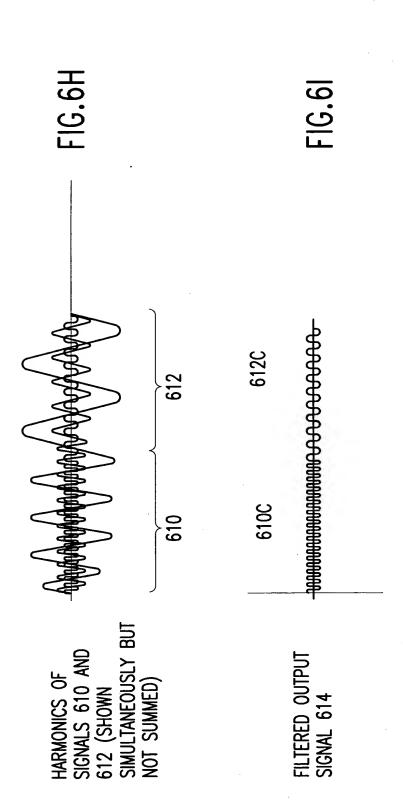
SWITCH MODULE 304



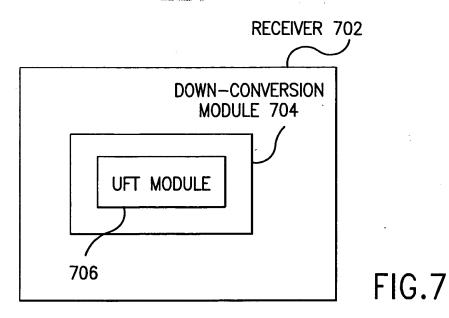
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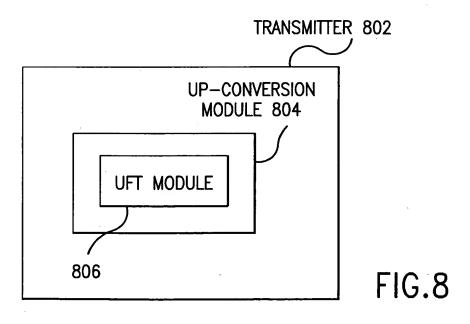


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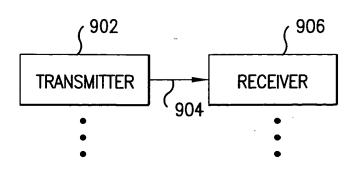
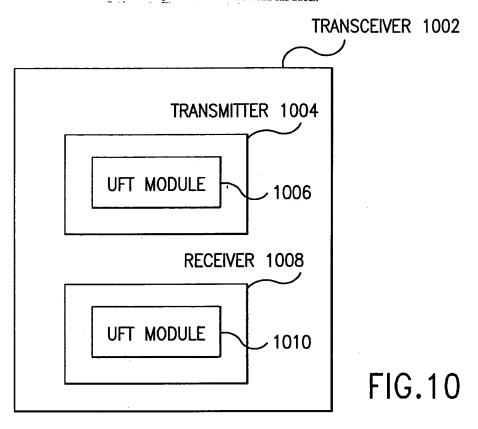
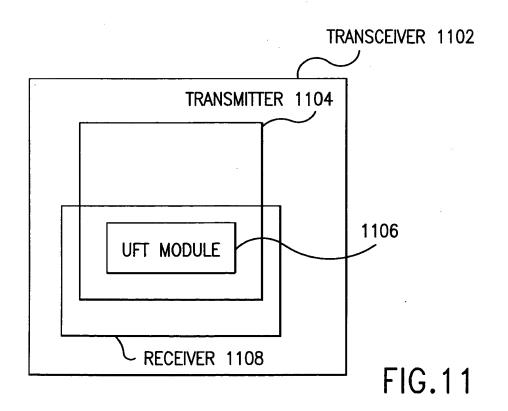


FIG.9

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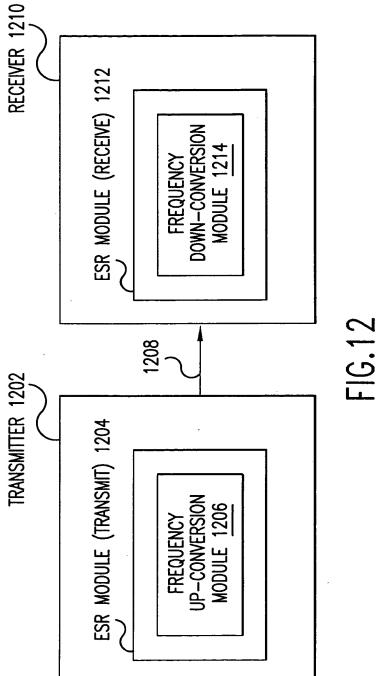
Inventors: Sorrells et al.

Tel. No.: 202-371-2600

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or: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit

## FREQUENCY DOWN—CONVERSION MODULE 1304 FILTERING MODULE 1306 UFT MODULE 1308

**FIG.13** 

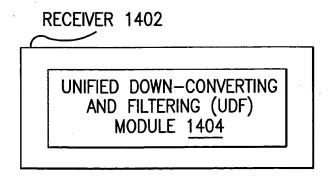
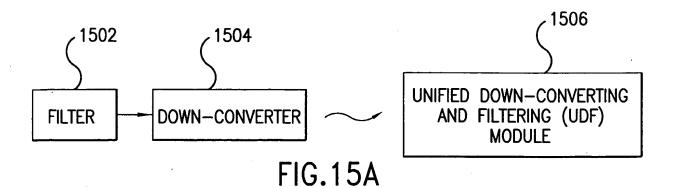
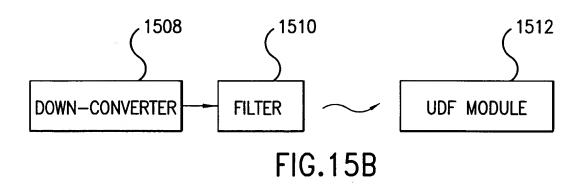
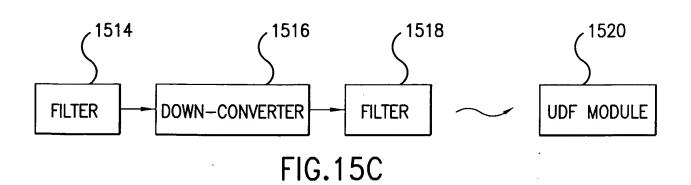


FIG.14

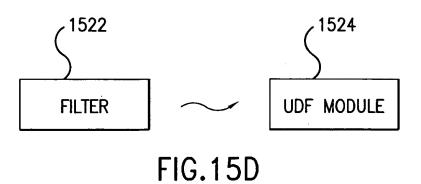
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DOWN-CONVERTER UDF MODULE

FIG.15E

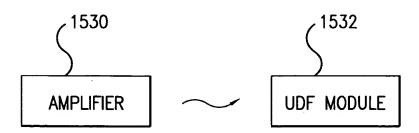


FIG.15F

Replacement Sneet

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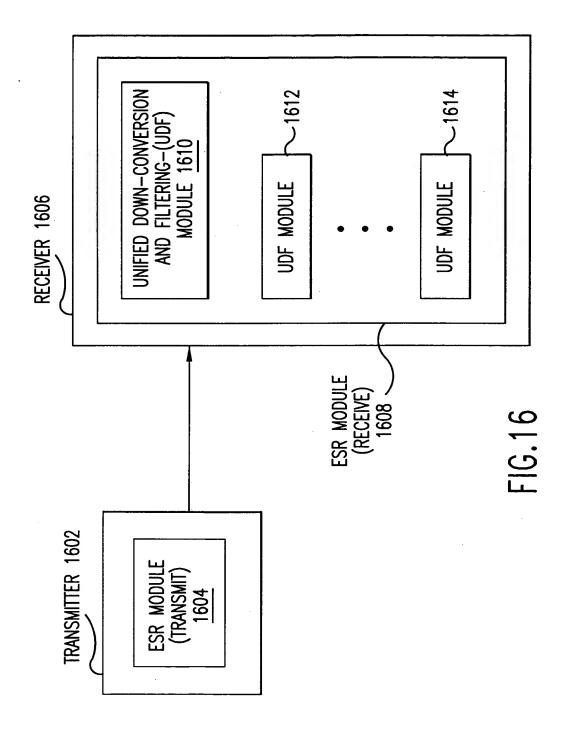
Inventors: Sorrells et al.

Tel. No.: 202-371-2600

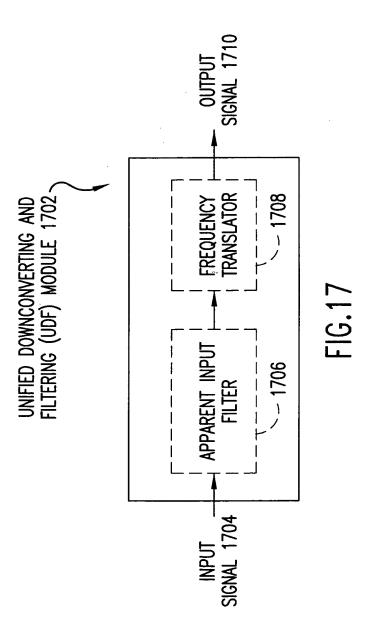
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For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

TIME	t-1	L 2	t-1	L	+	1	† (10)	ر د د	(+1 (picin)	700
NODE	(KISING OF $\phi_1$ )	EUGE	(KISING EDGE $0F \phi_2$ )	EUGE	OF 41	(KISING EDGE OF \$1)	(KISING EDGE OF $\phi_2$ )	EDGE	OF 41	(Kising Edge OF \$1)
1902	W t−1	1804	Wt-1		۷Iţ	1816	۷۱ <sub>t</sub>	1826	VI <sub>t+1</sub>	1838
1904			VI <sub>t-1</sub>	1810	Wt-1	1818	۷۱ <sub>t</sub>	1828	۷۱	1840
1906	V0 <sub>t-1</sub>	1806	V0t-1	1812	70¢	1820	100 t	<u>1830</u>	V0 <sub>t+1</sub>	1842
1908	1		V0 <sub>t-1</sub>	1814	V0 <sub>t-1</sub>	1822	70v	1832	V0t	1844
1910	1	1807	-		V0 <sub>t-1</sub>	1824	₩10-1	1834	70 <sub>t</sub>	1846
1912	1		-	1815	ı		₩ <sub>t-1</sub>	1836	V0 <sub>t-1</sub>	1848
1918	1		1		1		1		VI <sub>f</sub> 185	1850 0 <sub>f</sub>
			i						0.0	∨t–1

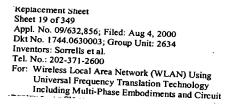
Inventors: Sorrells et al.

Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit UDF MODULE 1922 (BAND PASS) SECOND DELAY MODULE 1930 SECOND SCALING MODULE 1934 <u>1910</u> 1990D FIRST SCALING ~ MODULE 1932 1990E|1 1968 1966 1916 1908 FIG. 19 8 1992 0本 1964 OUTPUT SAMPLE AND HOLD MODULE 1936 1920 1914 1962 FIRST DELAY MODULE 1928 1918 CONTROL SIGNAL (SAMPLING SIGNAL) 1991 1926 096 904 958 FREQUENCY TRANSLATOR 1708 NPUT FILTER 1706 1924 1954 04 DOWN CONVERT DELAY MODULE 7 1990A 950 <u>₹</u>

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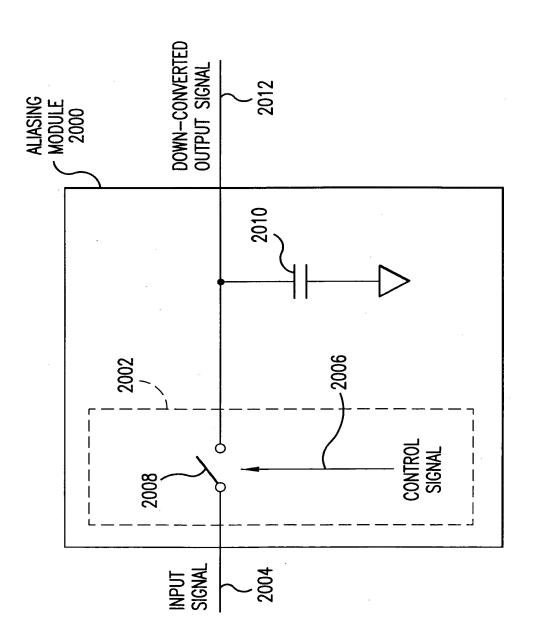
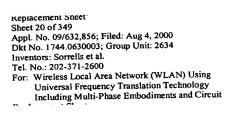


FIG.20A



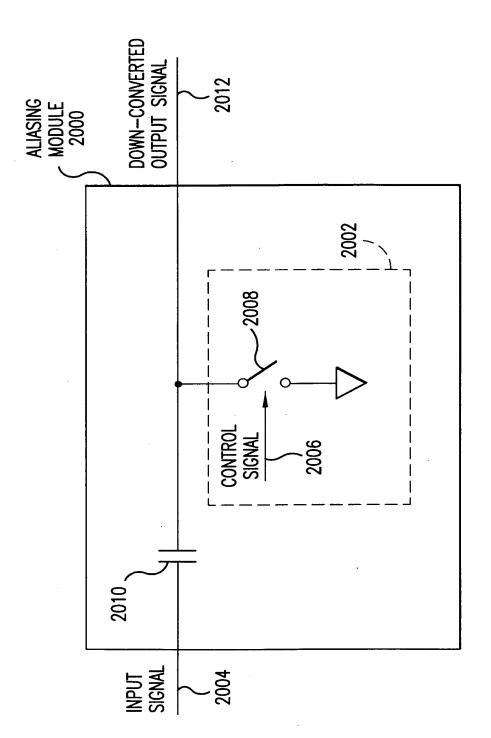


FIG.20A-1

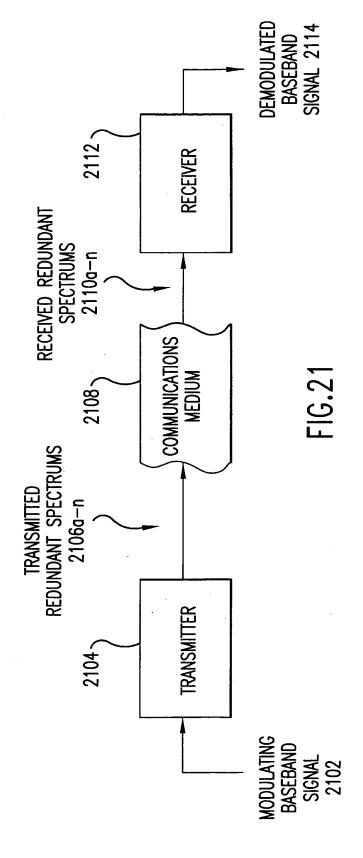
For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit 2014 FIG.20B  $t_0$ t 4 t 2 t ʒ 2016-2022 FIG.20C  $t_0$ 2018-2020. FIG.20D t<sub>0</sub> 2024 2022 FIG.20E 2026 FIG.20F

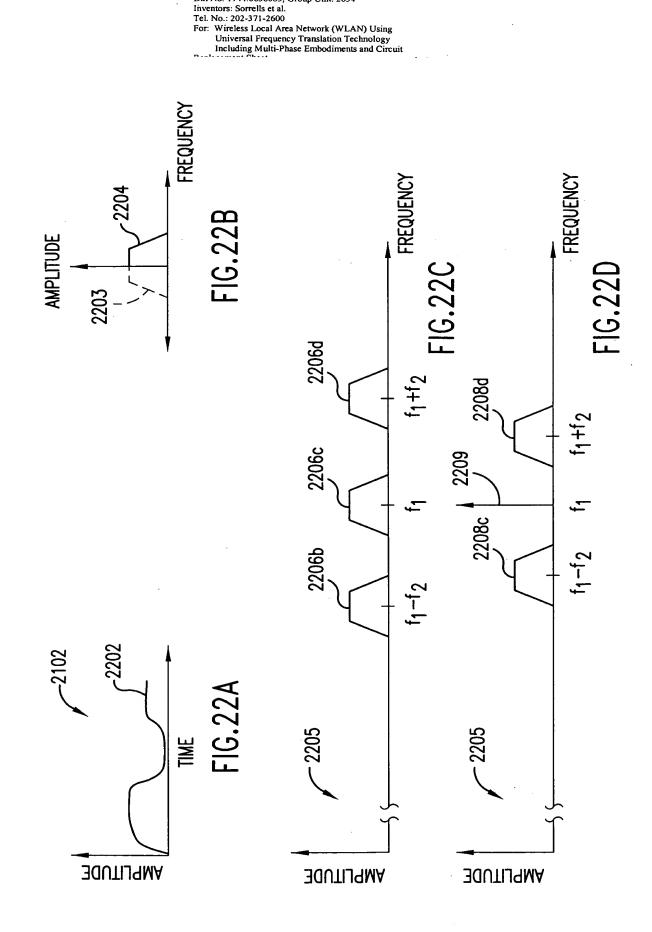
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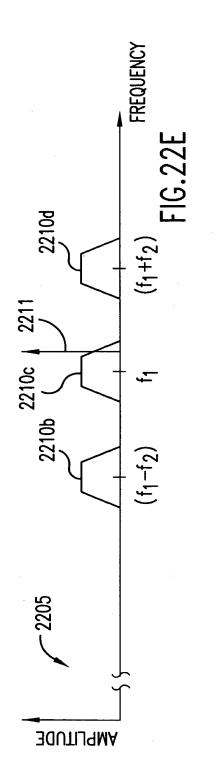
For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit

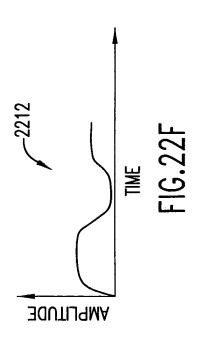




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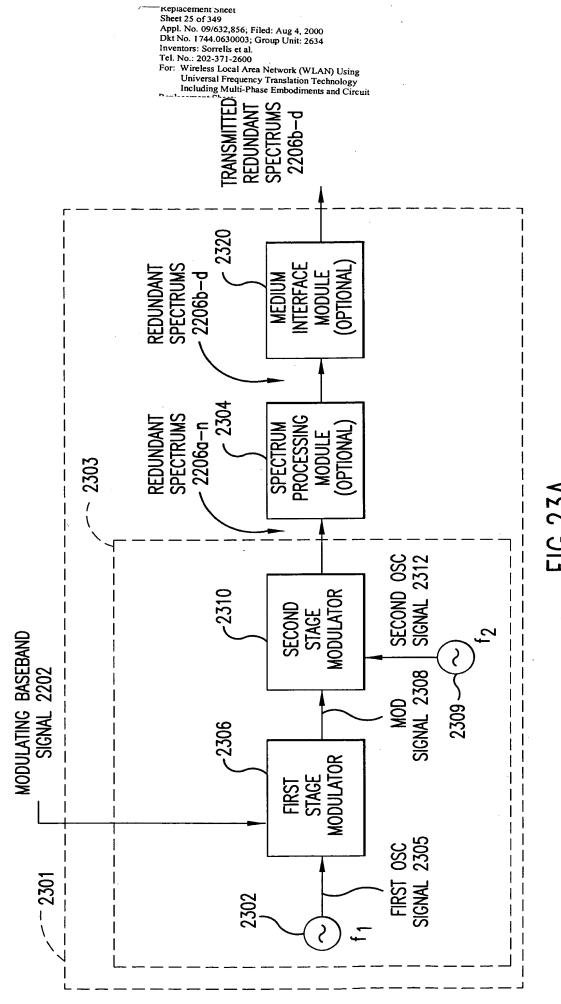
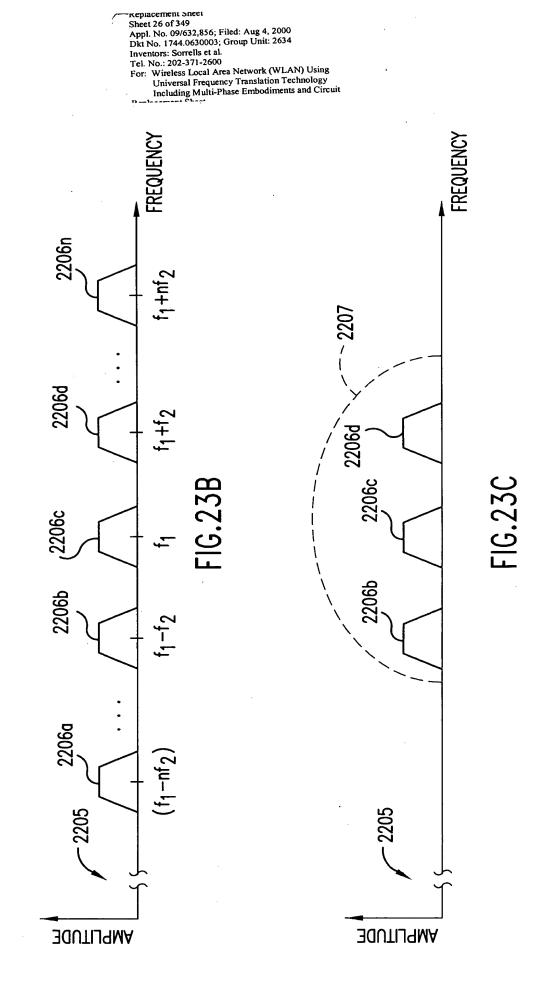
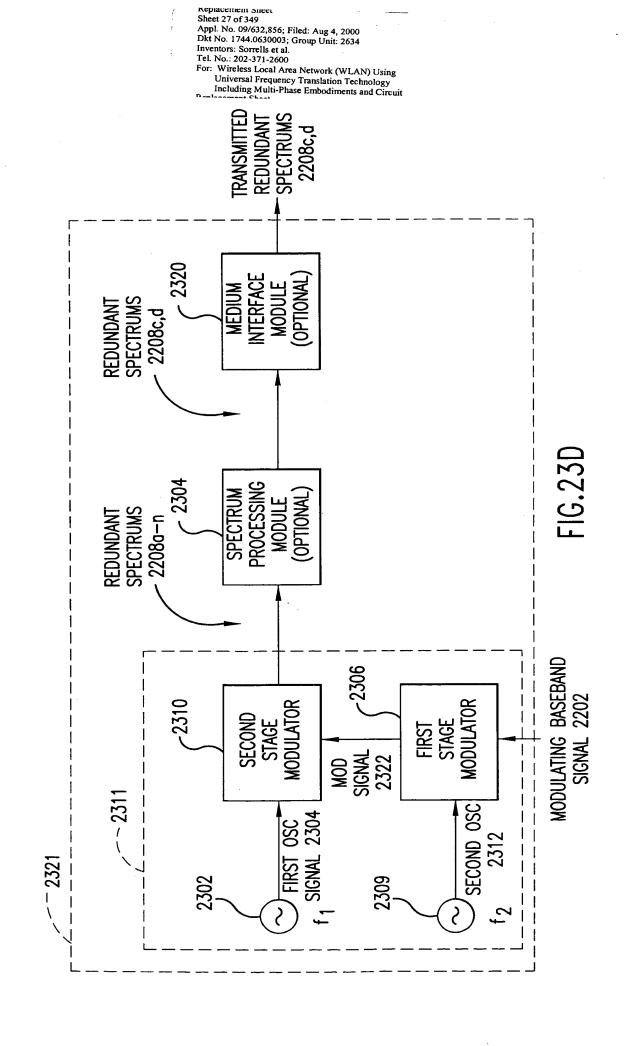
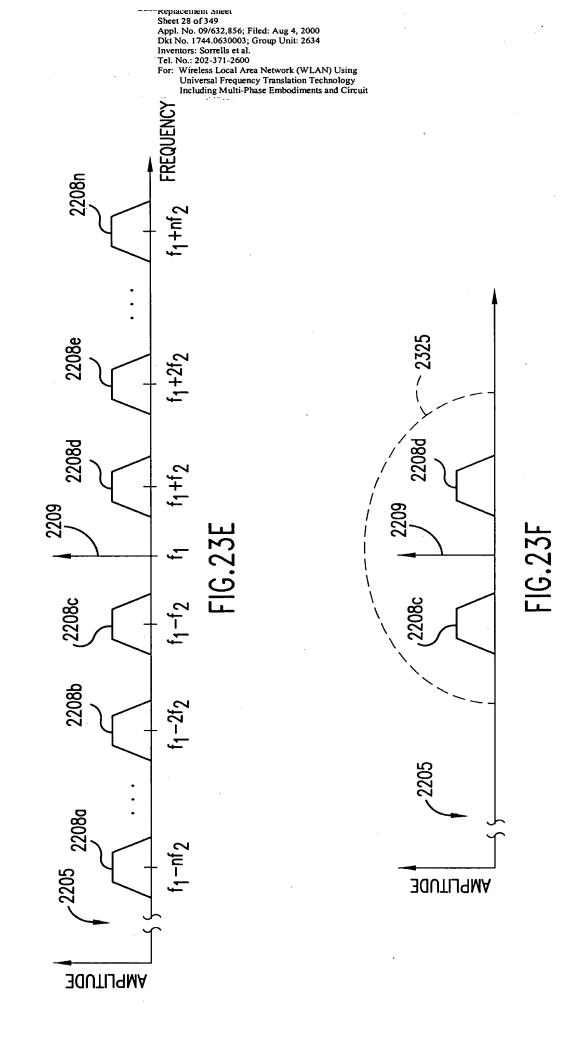


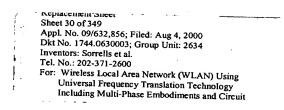
FIG.23A

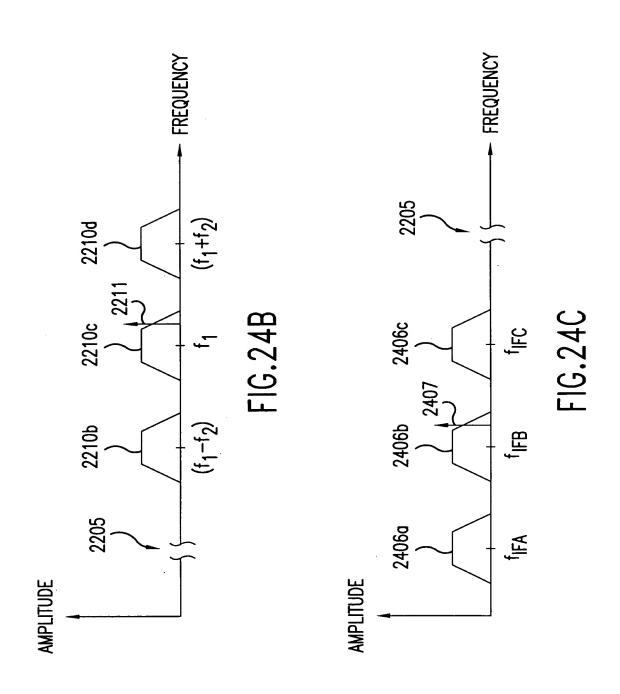




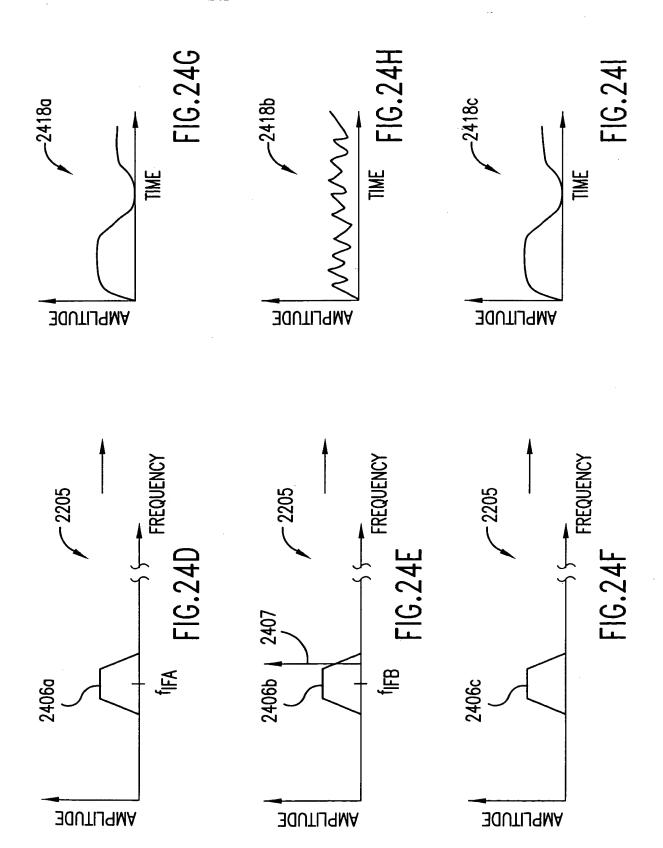


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For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit DEMOD BASEBAND SIGNAL 2212 ARBITRATION MODULE 2424 2420c 2422b <sup>1</sup> 2422a 2418c 2418a 2418b -2420a .2420b CHECK CHECK ERROR ERROR CHECK 2418a 2418b 2418c 2414 -2416a .2416b .2416c DEMOD DEMOD DEMOD DEMOD FIG.24A 2406a 2406b 2406c ·2410a 2410c f FB Į. REDUNDANT SPECTRUMS 2406a-c 2408 2404 DOWN-CONVERTER RECEIVED
REDUNDANT
SPECTRUMS
2210b-d 2402 (OPTIONAL)
MEDIUM
INTERFACE
MODULE REDUNDANT SPECTRUMS 2210b-d

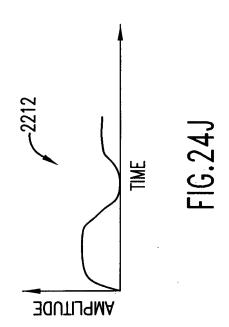




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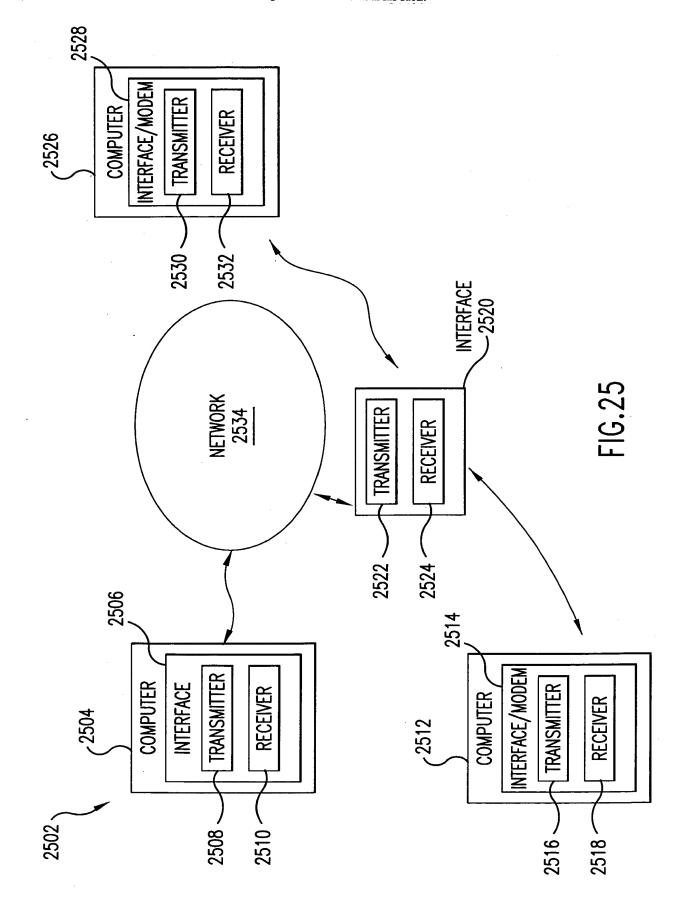


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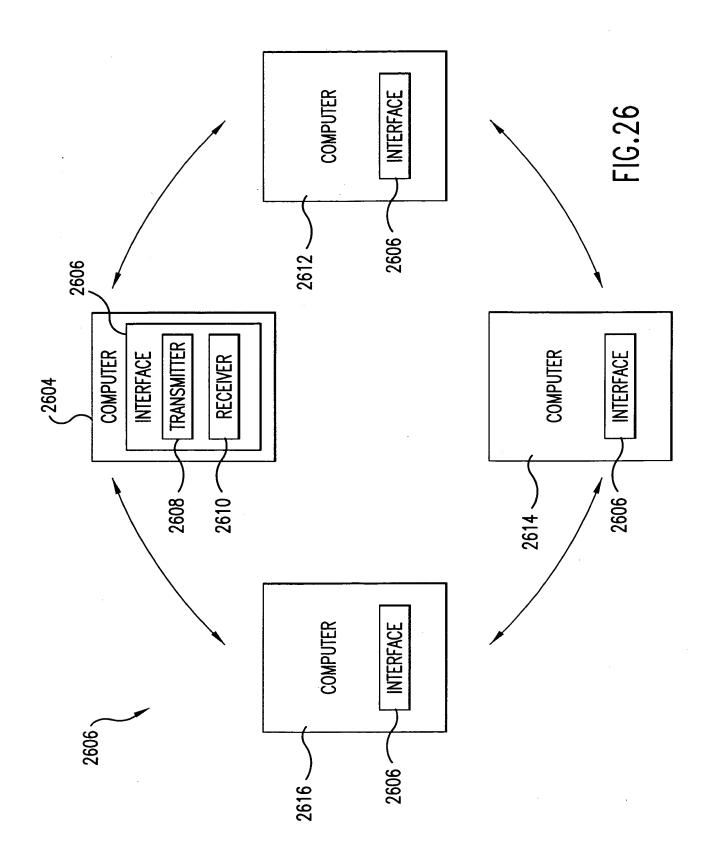


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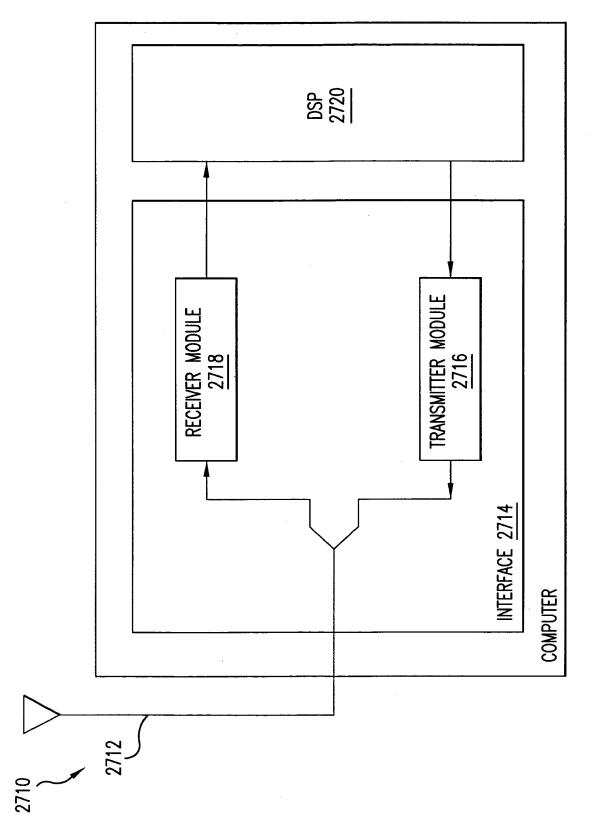
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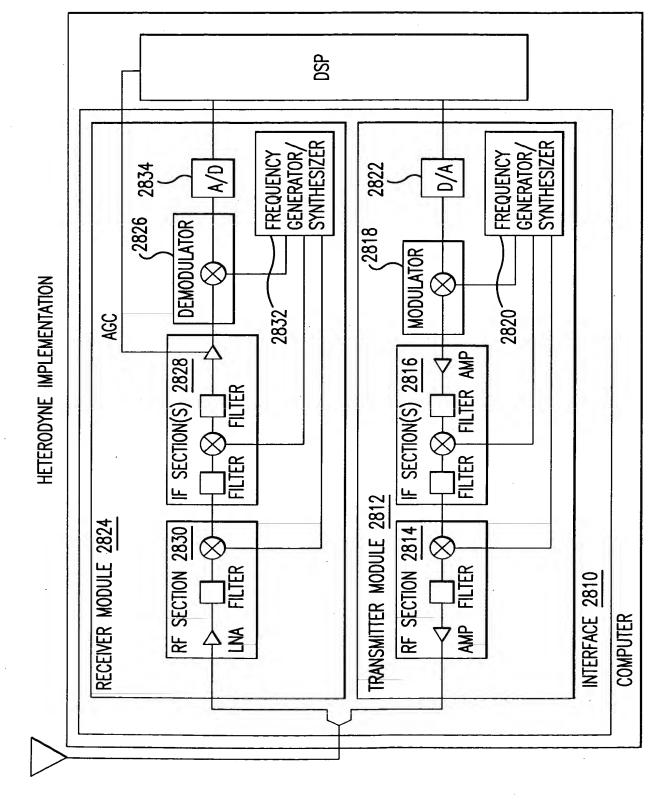


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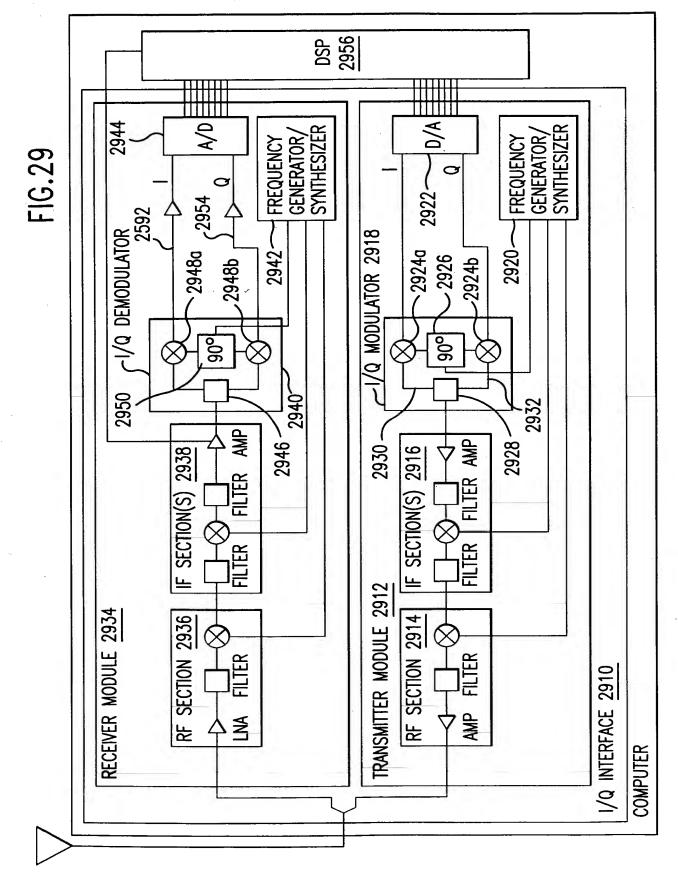
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Dkt No. 1744.0630003; Group Unit: 2634

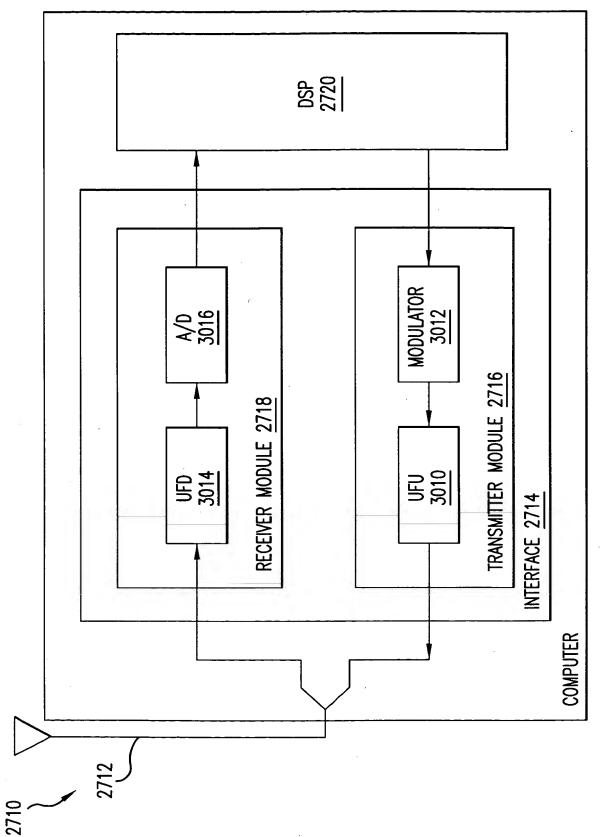
Inventors: Sorrells et al.

Tel. No.: 202-371-2600



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Inventors: Sorrells et al.
Tel. No.: 202-371-2600

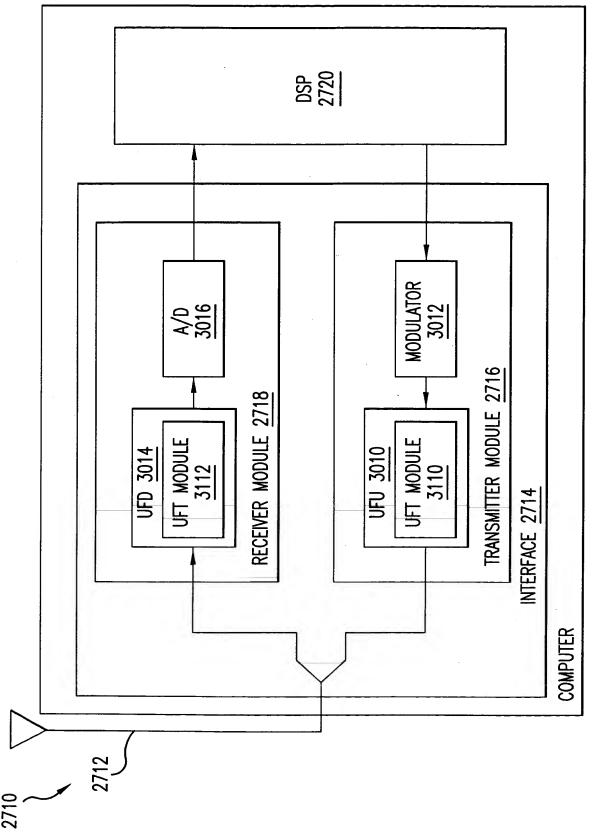
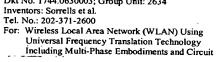
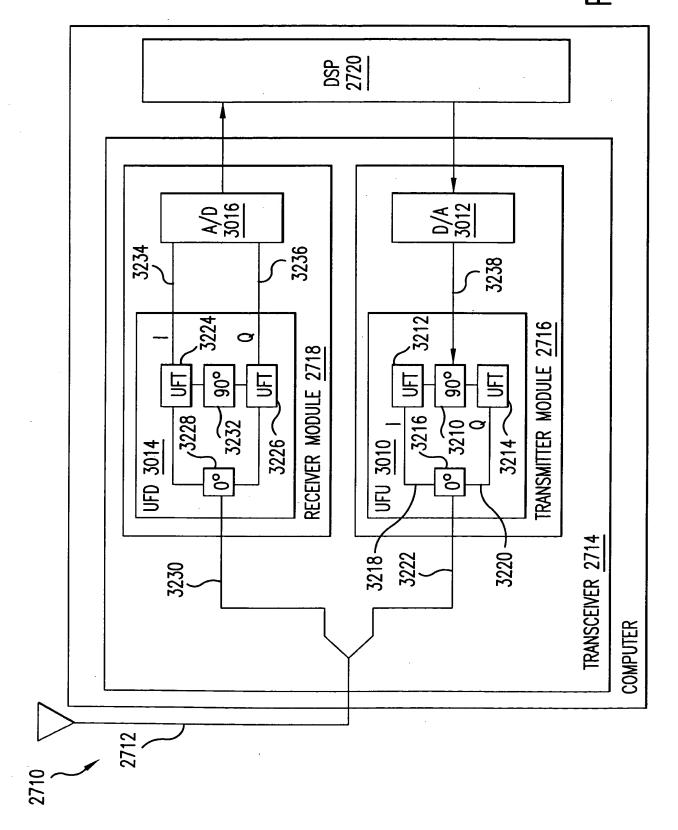


FIG.31





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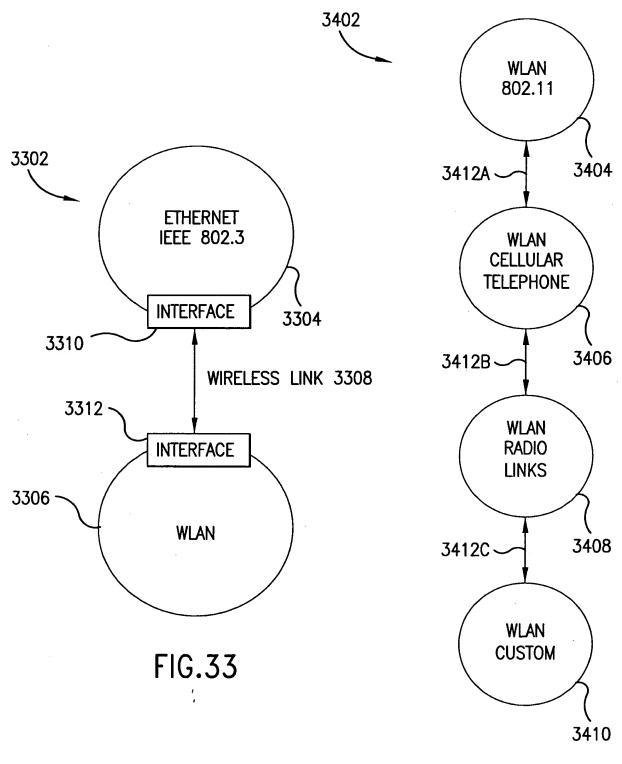
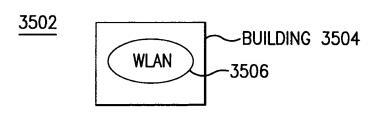


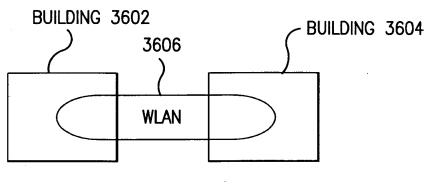
FIG.34

Replacement Sheet Sheet 42 of 349 Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.0630003; Group Unit: 2634

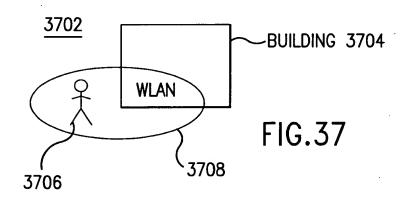
Inventors: Sorrells et al. Tel. No.: 202-371-2600



**FIG.35** 



**FIG.36** 





Replacement Sheet Sheet 43 of 349 Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.0630003; Group Unit: 2634 Inventors: Sorrells et al. Tel. No.: 202-371-2600 For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit COMPUTER J3918 3916 MAC ~3940 393e 3914 DISTRIBUTED CONTROL ¥ç 3930 Modulator Facilitation Module 3912 **DEMODULATOR,** WLAN INTERFACE/ MODEM 3942 3944 3926 0 CONTROL SIGNAL 3920B CONTROL SIGNAL 3920A 3906 CONTROL SIGNAL GENERATOR TRANSMITTER RECEIVER 3908 3924 LNA/PA 3904 ANTENNA 3903 3922

Replacement Sheet

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Dkt No. 1744.0630003; Group Unit: 2634

Inventors: Sorrells et al.

Tel. No.: 202-371-2600

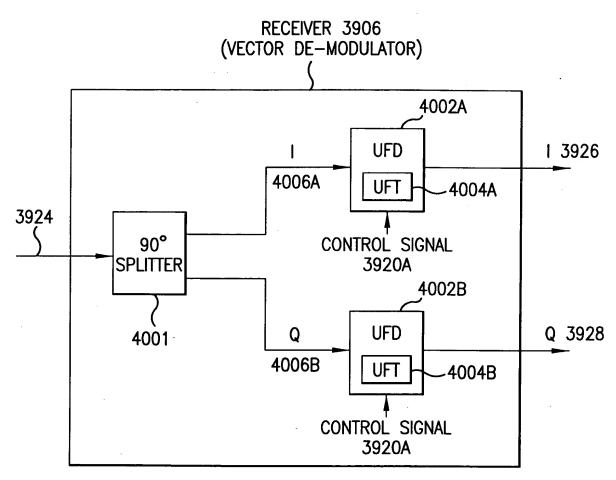
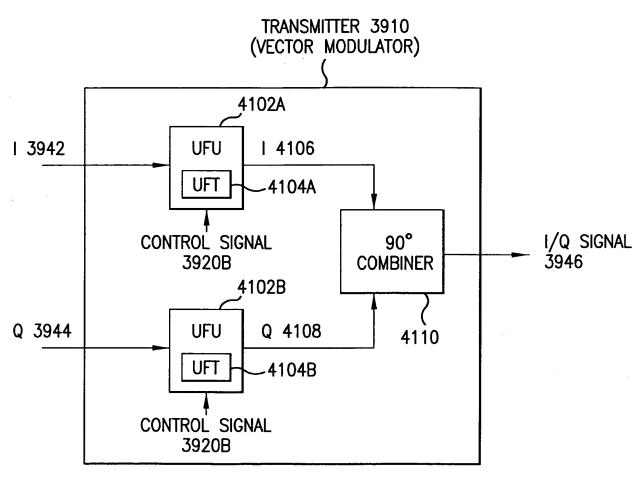


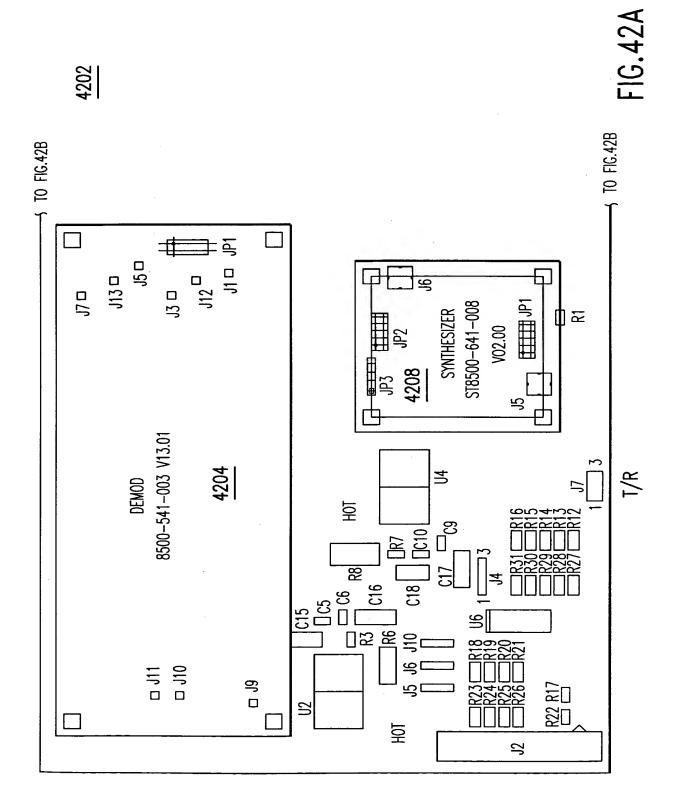
FIG.40

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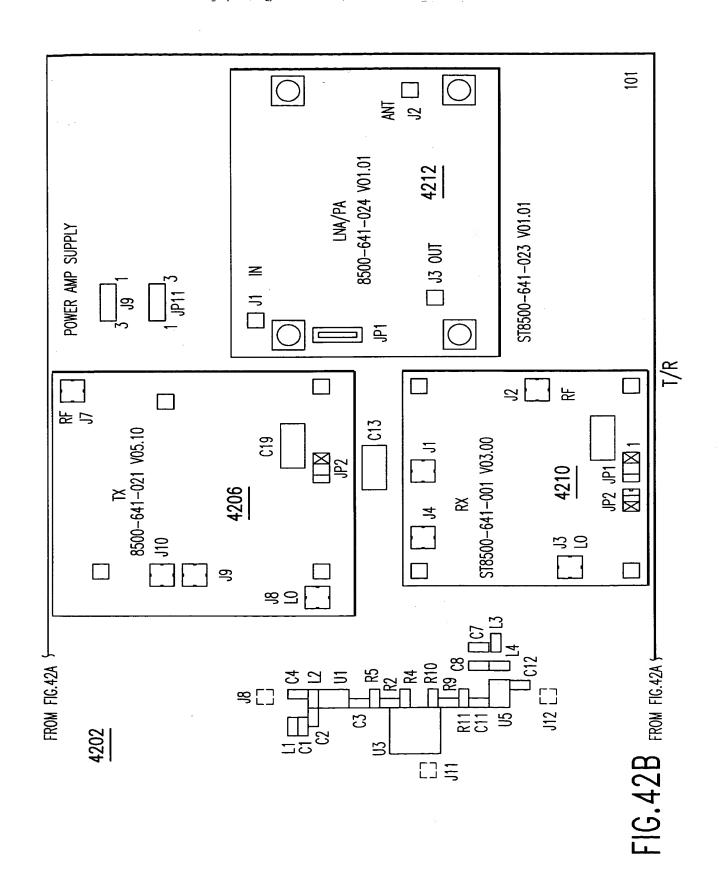
**FIG.41** 

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Inventors: Sorrells et al.
Tel. No.: 202-371-2600

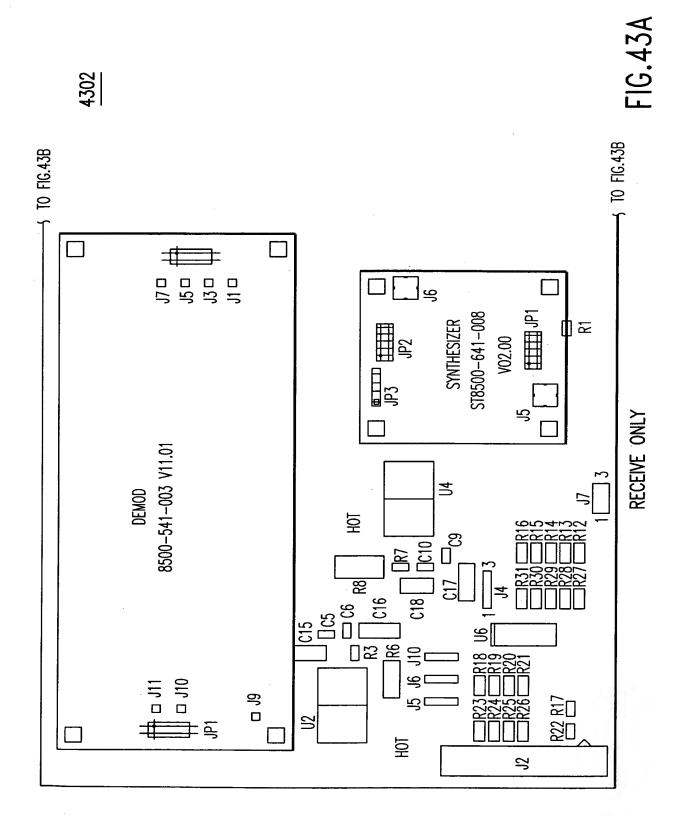


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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
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Including Multi-Phase Embodiments and Circuit



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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

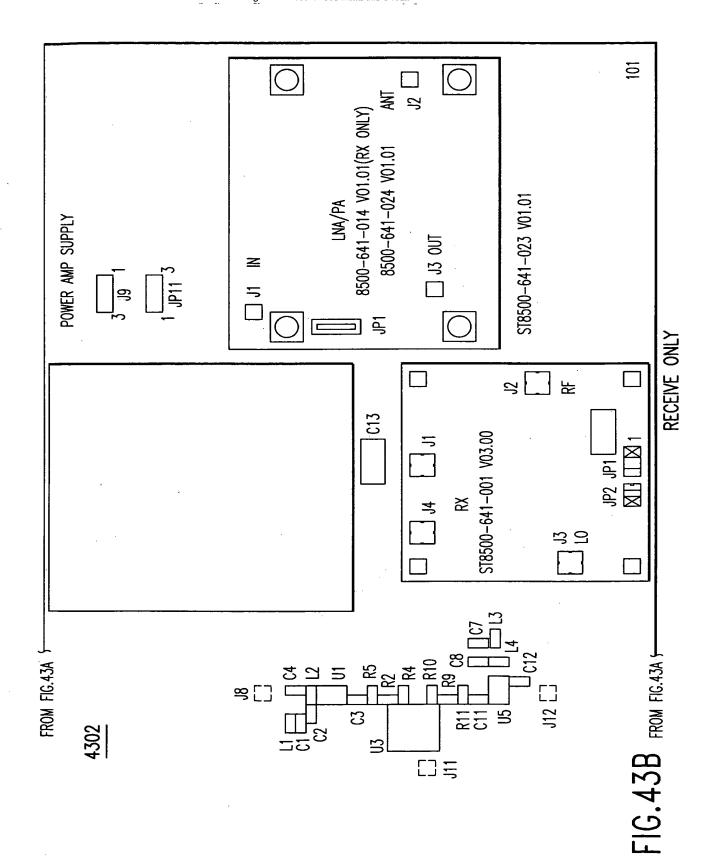


New Sheet Sheet 49 of 349 Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.06300003; Group Unit: 2634 Inventors: Sorrells et al.

Inventors: Sorrells et al.

Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit



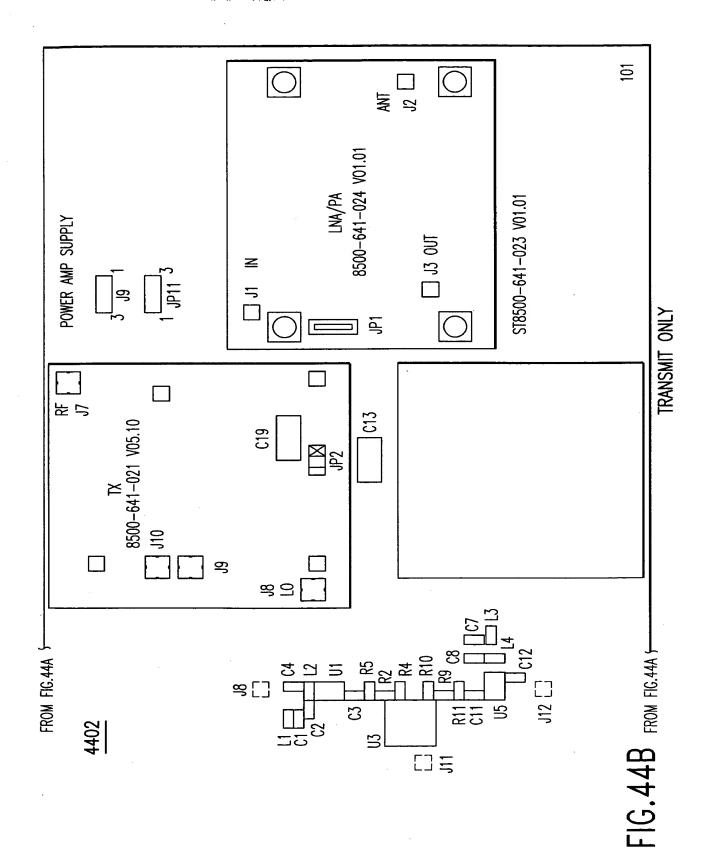
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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit 4402 TO FIG.44B TO FIG.44B J5 🗆 ي [ 1130 170 ]3 🗆 SYNTHESIZER ST8500-641-008 լլ **V**02.00 TRANSMIT ONLY  $\overline{5}$ DEMOD 8500-541-003 V13.01 얼 දූ | | 82 C18 C16 [] 동 동 등 c ച്ച - J11 - J10 <u>ട</u> R22 R17 덛 2

Replacement Sheet Sheet 50 of 349

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Appl. No. 09/632,856; Filed: Aug 4, 2000
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Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit **₽**■\_\_ <del>P</del>₽₽ **Θ□**<sub>▶</sub> Θ**∄**<sub>D</sub> 3914 **⊚**■⊳ **PPP** 7

Replacement Sheet Sheet 52 of 349 Replacement Sheet
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Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

Item	Item Quantity Reference	Refe	rence			Part Description	Part Number	Manufacturer
-		C123				10uF CAP 6032, TANTALIM 20%	TAJT106K010R	KEMET
2	٣	C263,	c263, c273, c275, c282	C275,	C282	4.7uF CAP 6032, TANTALUM,20%	T491A475M006AS	KEMET
2	25	C120, C128,	C125, C136,	C126, C137,	C126, C127, C137, C138,	0.1uF CAP 0603,X7R,10%	GRM39X7R104K050AD	MURATA
		C139,	C140,	C141,	C142,			
	-	C148	C149,	C264,	C272,			
		C274, C283	C279,	C280,	C281,			
4	3	C146,	C269,	C276		.01uF CAP 0603,X7R,10%	GRM39X7R103K050AD	MURATA
2	2	C124,	C132,	C133, C271,	C271,	100pF CAP 0603,X7R,10%	GRM39C0C101K050AD	MURATA
c	•	27/8 27/8				\$0.4 OLV 1000 010 P L1	210010000000000000000000000000000000000	
٩	_	C129				4/pt CAP 0603,X/R,10%	GRM39C0G4/0J100AD	MURAIA
_	7	C270,	C277			27pF CAP 0603,X7R,10%	GRM39C0G270K050AD	MURATA
∞	-	C130				22pF CAP 0603, X7R, 10%	GRM39C0G220K050AD	MURATA
6		<b>C131</b>				10pF CAP 0603, X7R, 10%	GMR39C0C100D050AD	MURATA
10		021				LED GREEN	597-3311-420	DIALIGHT
=	-	082				LED YELLOW	597-3401-420	DIALIGHT
12	•	DS3				LED RED	597-3111-420	DIALIGHT
13	9	JP12, JP17	JP13,	JP14,	14, JP15, JP16,	CONNECTOR HEADER 2PIN	2MS-19-33-01	SPECIALITY ELECTRONICS
14	-	JP11				CONNECTOR HEADER 4PIN	100/VH/TM1SQ/W.100/4	BLKCON

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Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

HUBER/SHUNER	SAMTEC SAMTEC ITT CANON	MURATA		PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	ERJ KOA	PANASONIC	PANASONIC		SAMSUNG	MITSUBUSHI	AMD
82MMCX-50-0-1	TMS-110-01-G-S EHT-1-10-01-S-D DICMJ-68S-SPC-M08	BLM11A121S		ERJ-36SYJ394V	ERJ-36SYJ104V		_		ERJ-36SYJ392V	ERJ-36SYJ751V	ERJ-36SYJ561V	ERJ-36SYJ331V	ERJ-36SYJ500V	ERJ-36SYJ100V	RM732Z1J000ZT	36SYJ000V	~		KM62256DLTG-5L	M5M5256CVP-55LL	AM79C930
CONNECTOR 82MMCX	CONNECTOR HEADER 10 CONNECTOR WITH EJECTOR CONNECTOR 34X2PCMCIA	FERRITE BEAD	10M, RESISTOR,0603,5%	390K, RESISTOR, 0603, 5%	100K, RESISTOR, 0603, 5%	15K, RESISTOR, 0603,5%	9.1K, RESISTOR, 0603,5%	8.2K, RESISTOR, 0603,5%	3.9K, RESISTOR, 0603,5%	750, RESISTOR, 0630,5%	560, RESISTOR, 0603,5%	330, RESISTOR, 0603,5%		10, RESISTOR, 0603,5%	0, RESISTOR, 0603,5%		TBD, RESISTOR, 0603,5%		SRAM		MAC
116, J20, J21, J22, J23, J24,	72 118 119 P1	L59, L60, L61, L63, L64, L65, L66	R112	R114	R105	R107, R108, R111				R101	R110	R99, R100	R119	R128, R129	R102, R103, R104, R109,	R117, R118, R120, R127,	R121, R122, R123, R124,	R125, R126	010		U12
7	<del></del>	_	<del></del>	_	-	4	-	<del></del>	-	-	-	7	-	7	<b>∞</b>		9		<del></del>		-

21 22 22 23 24 25 26 27 28 29 30 31 31 33 33

17 18 19

New Sheet
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Including Multi-Phase Embodiments and Circuit

BASEBAND PROCESSOR	HFA3842A1	HARRIS
FLASH RAM	AM29F010-55EC	AMD
32 KHz CRYSTAL	CX-6V-SM2-32.768KHz	C/1 STATEK
BUS BUFFER	DS3862 NATIONAL	NATIONAL
REGULATOR 3.5 V	TK11235BMC	10K0
22MHz OSCILLATOR	FOX F3346-22MHz	FOX
2 VOLT REFERENCE	TK11220BMC	T0K0
40MHz OSCILLATOR	CXO-M-10N-40MH2 A/1	STATEK

U13 U14 U15 U48 U49 U50

38 38 44 45 45 44 45 45

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Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

FIG.47B	FIG.47D
FIG.47A	FIG.47C

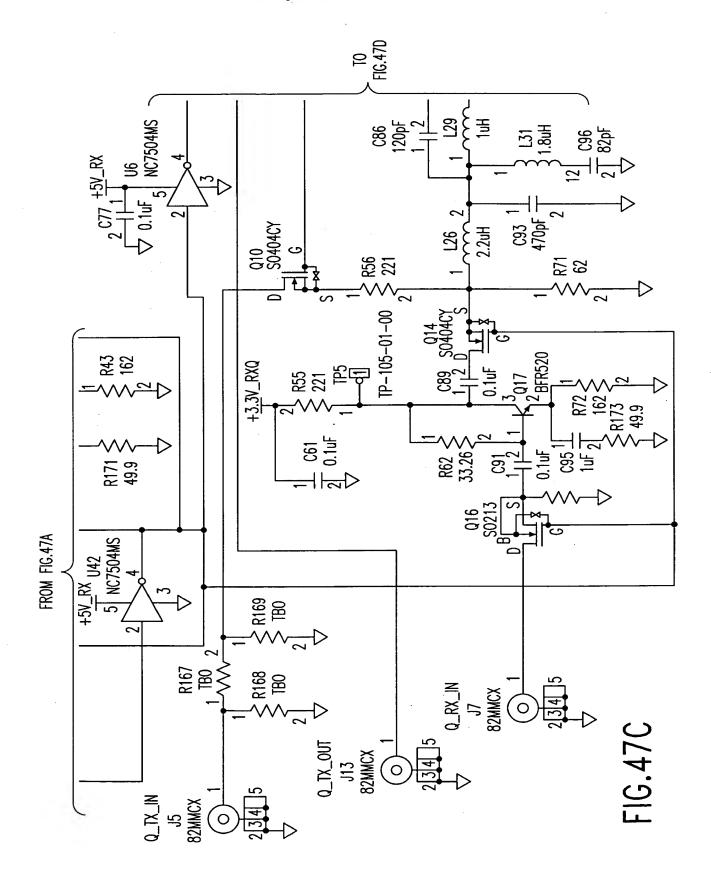
Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.0630003; Group Unit: 2634 Inventors: Sorrells et al. Tel. No.: 202-371-2600 For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit TK11235AMTI **U43** 2 L1 1 BLM11A1213 R30 221 ALLOW\_CONNECT=TRUE R42 +5V\_RX R29 22.1 411 22.1 +3.3V\_RX1 R164 2 — C61 → 0.1uF R165 1B0 33.2K TO FIG.47C |\_TX\_0UT | 112 | 82MMCX I\_RX\_IN J3 82MMCX SZMMCX 3912 4700040 FIG.47A 린 TX/RX8 +5V RX

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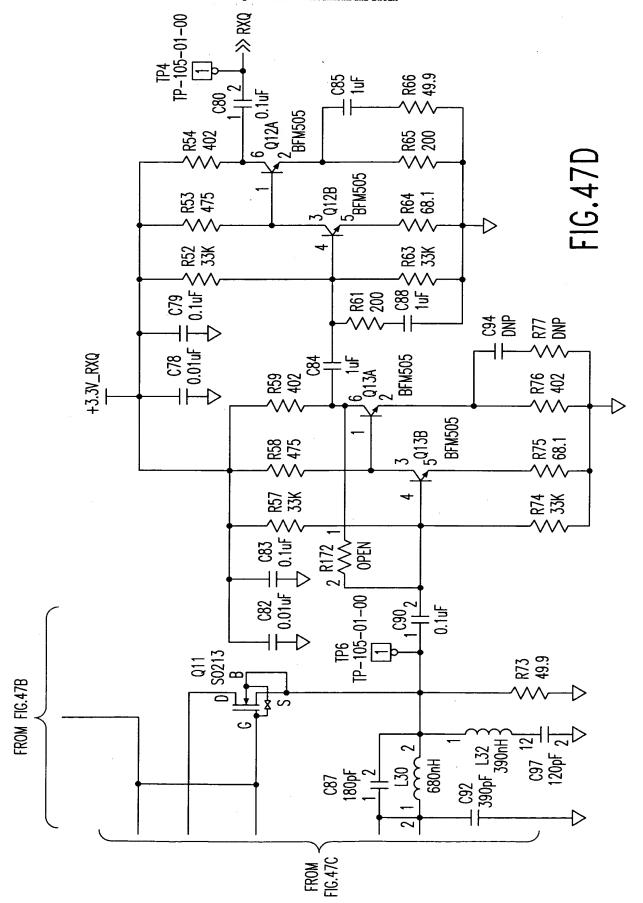
New Sheet Sheet 58 of 349 Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.0630003; Group Unit: 2634 Inventors: Sorrells et al. Tel. No.: 202-371-2600 For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit TP1 TP-105-01-00 盔 R37 49.9 £ ₹ FIG.47B R25 402 R36 200 R24 475 R35 68.1 +3.3V\_RXI 33 33 33 33 X X 200 ✓ 200 \$ & BFM505 C72 DNP R28 402 R47 402 **BFM505** <sub>5</sub> Q4B > R27 > 475 R46 68.1 +3.3V\_RXI +3.3V\_RXQ +3.3V\_RX . SS S R26 33K 33 33 34 35 35 . C68, 03 S0213 B R44 49.9 TO FIG.47D 120pF 680nH FROM FIG.47A

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For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit

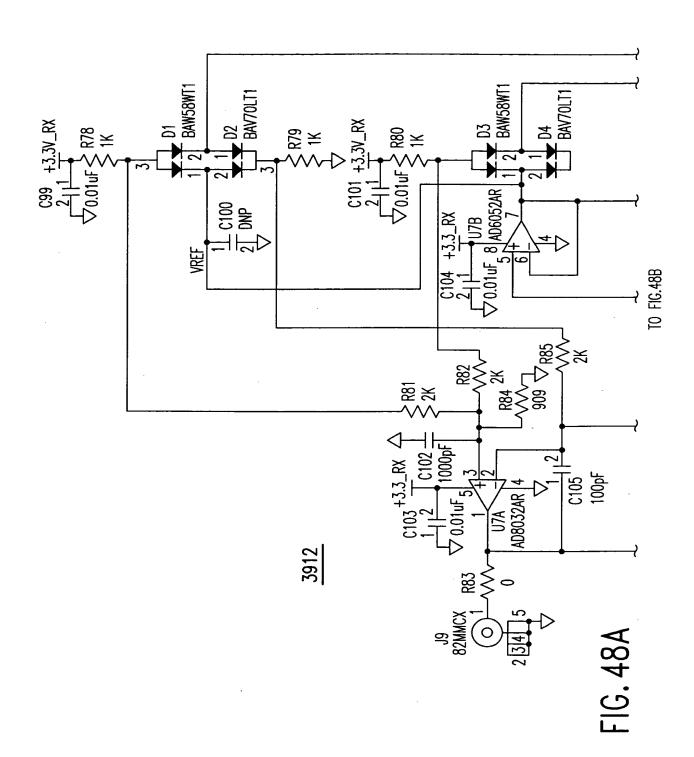


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Inventors: Sorrells et al.
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For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit



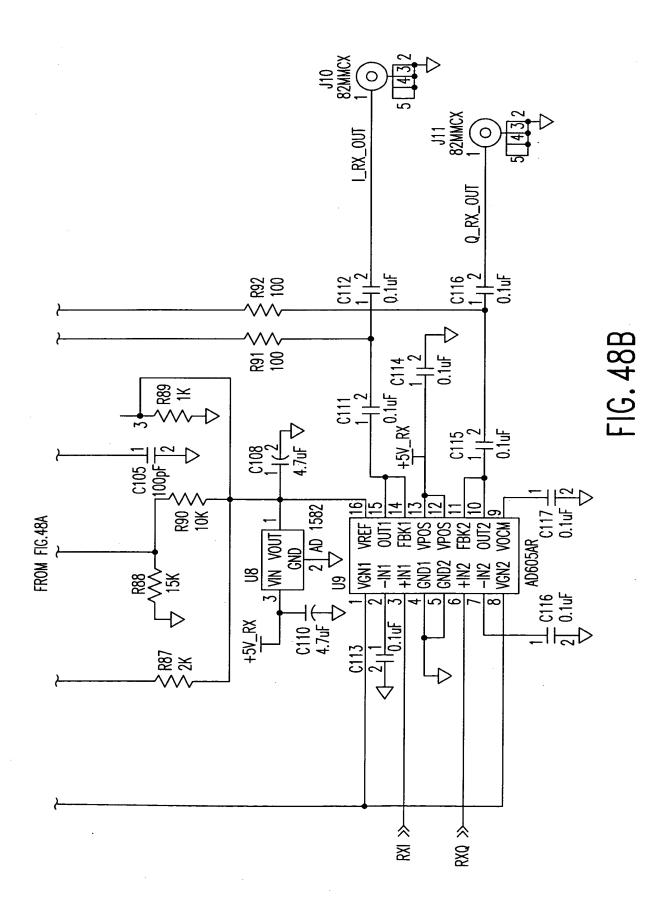
Replacement Sheet Sheet 61 of 349 Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.0630003; Group Unit: 2634

Inventors: Sorrells et al.
Tel. No.: 202-371-2600
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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

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MANUFACTURER	VCNCT	NEME I	MUKAIA					KEMET	MURATA		MURATA		MURATA	MURATA	MURATA	MURATA	MURATA	MURATA	MURATA	MURATA	MOTOROLA	MOTOROLA	SAMTEC	SUHNER		MURATA	MURATA	MURATA	MURATA
PART NUMBER	TANTANTERONGAC	1491A4/JA00AS	01074010C18CMX9					T491A475K006AS	GRM39X7R103K050		GRM40Y5V105Z016	-	GRM39C0G121J050	GRM39C0C181J050	GRM39C0G391J050	GRM39C0C471J050	GRM40Y5V105Z016	GRM39C0G820J050	dNO	GRM39C0C102K050	BAW56WT1	BAV70LT1	FTSH-107-02-L-D	82MMCX-50-0-1		BLM11A121S	LQG21N2R2K10	LQC21N1ROK10	LQC21NR68K10
PART	7.1.	4. /ur	O. IUF					dNO	0.01uF		1uF		120pF	180pF	390pF	470pF	dNo	82pF	dNO	1000pF	BAW56WT1	BAV70LT1	HEADER 7X2	82MMCX		BLM11A121S	2.2uH	1uH	Hu089
REFERENCE	5	7,70	(51, C34, C37, C38, C60, C61,	C6/, C68, C69, C//, C/9, C80,	C81, C83, C89, C90, C91, C111,	c112, C113, C114, C115, C116,	C117,C118,C119	C55	C56, C59, C78, C82, C99, C101,	C103,C104	C62, C63, C66, C73, C84, C85,	688,095	C64, C75, C86, C97	C65,C87	C70,C92	C71,C93	C72,C94	C74,C96	C100, C106	C105,C102	03,01	04,02	JP1	11, 13, 15, 17, 19, 110, 111,	J12, J13	[1]	L23,L28	L29,L24	L30,L25
QUANT.		+ 2	07					-	. 8		8							2	2	2	2	2	1	9		1	2	2	2
ITEM	-	- 0	7					3	4		5		9	7	8	6	10	11	12	13	14	15	16	17		18	19	20	21

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For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

						311	211		211	010	21.	VIC.	\IC	VIC.	\IC	4IC		AIC.	AIC.	AIC VIC	AIC	NIC .	AIC OIL	VIC.	AIC .	VIC	AIC.		AIC OIL
MURATA	MURATA	CALOGIC	PHILIPS	CALOGIC	PHILIPS	PANASONIC	PANASONIC		PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC		PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC		PANASONIC
LQG21N1R8K10	LQC21NR39K10	SD404CY	BFM505	SD213	BFR520	ERJ3GSY0R00	ERJ36SYJ333		ERJ3EKF4750	ERJ3EKF 4020	ERJ3EKF2210	ERJ3GSYJ201	ERJ36SYJ333	ERJ3EKF68R1	ERJ3EKF2000	ERJ3EKF 49R9		ERJ3EKF1001	ERJEGSYJ620	ERJ3EKF1620	ERJ36SYJ330	ERJ3EKF2001	ERJ3EKF9090	ERJ3EJF1502	ERJ3EKF1002	ERJ3EKF1000			
1.8uH	390nH	SD404CY	BFM505	SD213	BFR520	0	33K		475	402	221	200	33.2K	68.1	200	49.9		1 <del>,</del>	62	162	dNO	2K	606	15¢	10K	100	TB0		OPEN
126,131	L32,L27	01,05,010,014	02,04,012,013	03,07,011,016	017,08	R19, R20, R21, R83	R23, R26, R34, R45, R52, R57,	R63,R74	R24, R27, R53, R58	R25, R28, R47, R54, R59, R76	R29, R30, R55, R56	R32,R61	R33,R62	R35,R46,R64,R75	R36, R65	R37, R44, R66, R73, R171,	R173	R40, R68, R78, R79, R80, R89	R42, R71	R43, R72	R77,R48	R81, R82, R85, R87	R84	R88	R90	R91, R92	R164, R165, R166, R167, R168,	R169	R170, R172
2	7	4	4	4	7	4	∞		4	ဖ	4	2	2	4	2	ဖ		9	7	7	2	4	-	_	-	7	9		7
22	23	24	25	26	27	28	29		30	31	32	33	34	35	36	37		38	39	40	41	42	43	44	45	46	47		48

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Including Multi-Phase Embodiments and Circuit

	VATIONAL SEMICONDUCTOR	VICES	VICES	VICES		
	NATIONAL	ANALOG DE	ANALOG DEVICES	ANALOG DE	10%0	
	NC7S04M5	AD8052AR	AD1582	AD605AR	TK11235BM	8500 541 003 V13 01
TP-105-01-00	NC7S04M5	AD8052AR	AD1582	AD605AR	TK11235AMTL	ROARD
TP1, TP2, TP3, TP4, TP5, TP6	U42,U6		8N	60	U43	
9	2	<b>,</b>	1	1	1	-
49	20	51	52	53	54	55

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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
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Including Multi-Phase Embodiments and Circuit

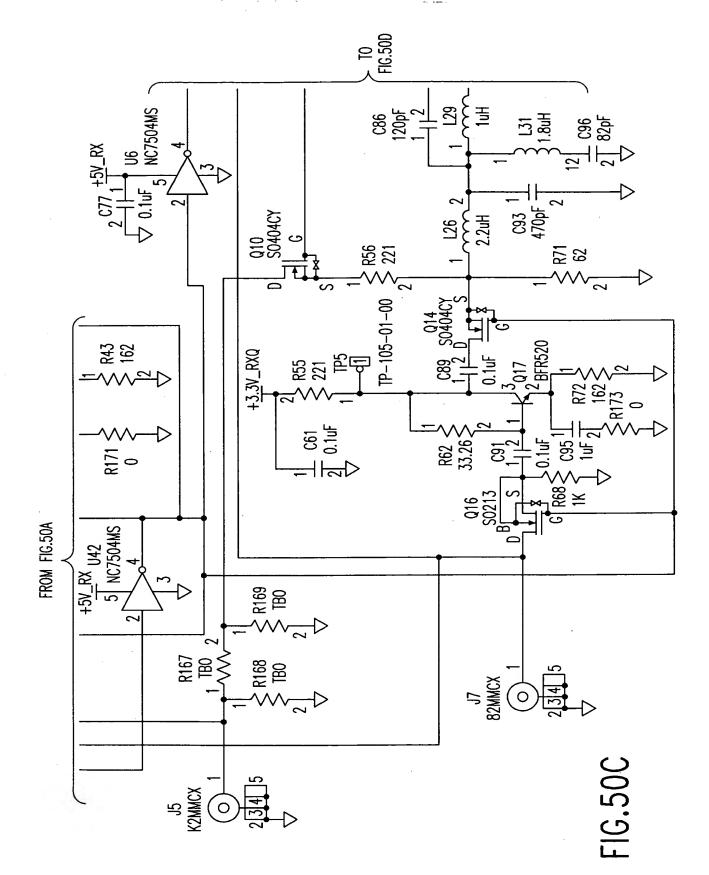
FIG.50B	FIG.50D
FIG.50A	FIG.50C

New Sheet Sheet 67 of 349 Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.0630003; Group Unit: 2634 Inventors: Sorrells et al. Tel. No.: 202-371-2600 For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit Y 70 FIG.50B 2 L1 1 BLM11A1213 043 R30 221 ALLOW\_CONNECT=TRUE 2 C51 1 0.1uF R42 62 +5V\_RX R166 TB0 +3.3V\_RXI \$ \$ \$ 8 \$ \$ \$ 8 C61 2 0.1uF R165 TB0 33.2K TO FIG.50C J3 82MMCX 0 <u>X</u> ≊ ≊ 3912 4708947 FIG.50A 맆 TX/RX8 1+5V RX

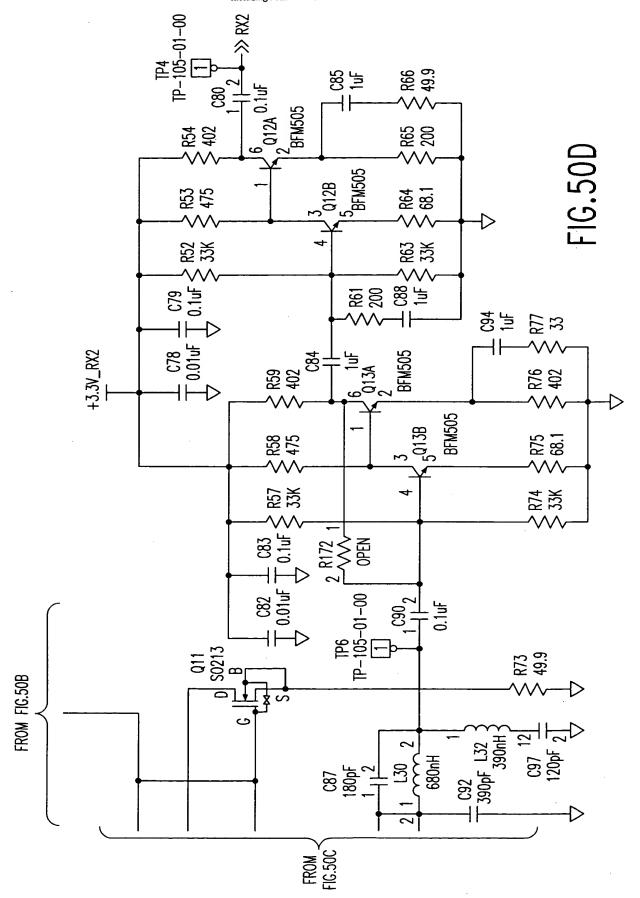
Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.0630003; Group Unit: 2634 Inventors: Sorrells et al. For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit TP-105-01-00 ፟ FIG.50B R25 402 R36 R24 475 R35 68.1 +3.3V\_RX1 35 XX ₹ ₹ ₹ 7 TuF R32 **33 28** BFM505 C72 1uF R28 402 <sub>5</sub> Q4B R46 68.1 C55 4.7uF 726 33<del>4</del> R170 +3.3V\_RXQ 689 +3.3V\_RXI 03 S0213 B R44 49.9 TO FIG.500 ပ် 680nH FROM FIG.50A

New Sheet Sheet 68 of 349

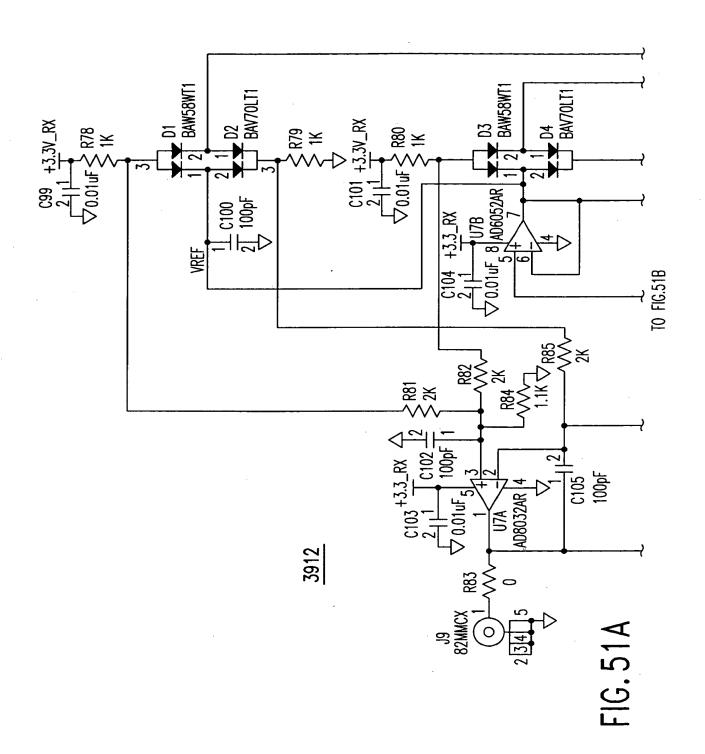
New Sheet Sheet 69 of 349 Sheet 69 of 349
Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit



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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
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Including Multi-Phase Embodiments and Circuit



Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.0630003; Group Unit: 2634 / Inventors: Sorrells et al. Tel. No.: 202-371-2600 For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit HEADER 7X2 ሯ O ≊ RSSI 25 5 5 7 7 FIG. 51B +5V\_RX AD 1582 % 5 5 5 5 FROM FIG.51A VOUT 8 \$ +5V\_RX C113 R87 2X ₹ 80 80 80 经

New Sheet

Replacement Sheet
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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

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MANUFACTURER	KEMET	MURATA					MURATA		MURATA		MURATA	MURATA	MURATA	MURATA	MURATA	MURATA			MOTOROLA	MOTOROLA		JOHNSON	SUHNER	MURATA	MURATA	MURATA	MURATA	MURATA
PART NUMBER	T491A475K006AS	GRM39Y5V104Z016					GRM39X7R103K050		GRM40Y5V105Z016		GRM39C0C121J050	GRM39C0C181J050	GRM39C0C391J050	GRM39C0G471J050	GRM39C0C820J050	GRM39C0C101K050			BAW56WT1	BAV70LT1		142-0701-231	82MMCX-50-0-1	BLM11A121S	LQG21N2R2K10	LQG21N1R0K10	LQC21NR68K10	LQC21N1R8K10
PART	4.7uF	0.1uF					0.01uF		1uf		120pF	180pF	390pF	470pF	82pF	100pF	1uF	4.7uF	BAW56WT1	BAV70LT1	HEADER 7X2	82MMCX	82MMCX	BLM11A121S	2.2uH	1 <sub>U</sub> H	Hu089	1.8uH
REFERENCE	C3,C52,C55	C51, C54, C57, C58, C60, C61,	C67, C68, C69, C77, C79, C80,	C81, C83, C89, C90, C91, C111,	C112,C113,C114,C115,C116,	C117,C118,C119	C56, C59, C78, C82, C99, C101,	C103,C104	C62, C63, C66, C72, C73, C84,	C85, C88, C94, C95	C64, C75, C86, C97	C87, C65	C70,C92	C71,C93	C96,C74	C100,C102,C105,C106,C107	C108	C110	03,01	04,02	JP2, JP1	11, 13, 15, 17, 110, 111	J9	l l	L28, L23	L24,L29	L30,L25	126,131
∆IO	3	76	I				8		10		4	2	2	2	2	5	1	1	2	2	2	9	1	1	2	2	2	7
ITEM	-	2			_		3		4		5	9	7	8	6	10	11	12	13	14	15	91	17	18	19	70	21	22

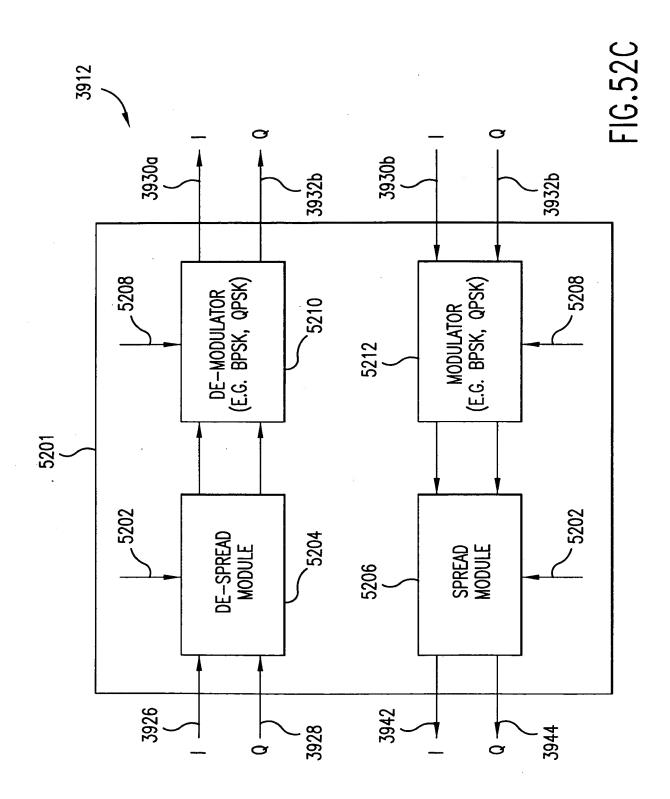
Replacement Sheet
Sheet 74 of 349
Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

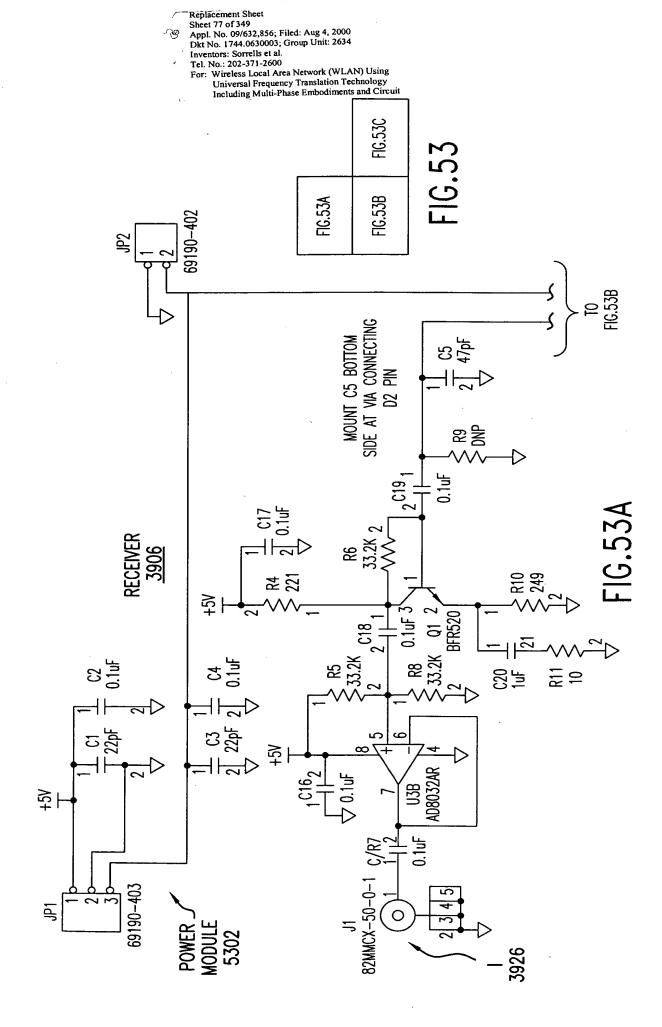
																									L	_			
MURATA	CALOGIC	PHILIPS	CALOGIC	PHILIPS		PANASONIC		PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC			
LQG21NR39K10	SD404CY	BFM505	SD213	BFR505		ERJ3GSY333		ERJ3EKF4750	ERJ3EKF4020	ERF 3EKF 2210	ERJ3GSYJ201	ERJ3GSYJ333	ERJ3EKF68R1	ERJ3EKF2000	ERJ3EKF49R9	ERJ3EKF1001	ERJ3GSYJ620	ERJ3EKF6810	ERJ3EKF1001	ERJ3GSYJ330	ERJ3EKF2001	ERJGSY0R00	ERJ3EKF2001	ERJ3EKF1502	ERJ3EKF1002	ERJ3EKF1000			
390nH	SD404CY	BFM505	SD213	BFR520	0	33K		475	402	221	200	33.2K	68.1	200	49.9	1K	62	162	49.9	33	2K	0	1.1K	15K	10K	100	180		0PEN
127,132	Q1,Q5,Q10,Q14	02,04,012,013	03,07,011,016	017,08	R19, R20, R21, R171, R173	R23,R26,R34,R45,R52,R57,	R63, R74	R24,R27,R53,R58	R25, R28, R47, R54, R59, R76	_	R32, R61	R33,R62	R35,R46,R64,R75	R36,R65	R66, R37	R40, R68, R78, R79, R80, R89	R42,R71	R43,R72	R44,R73	R77,R48	R81, R82, R85, R87	R83	R84	R88	R90	R91,R92	R164, R165, R166, R167, R168,	R169	R170,R172
2	4	4	4		5			4	9	4	2	2	4	2	2	9	2	2	2	2	4	-	-	1	1	2	9		2
23	24	22	56	27	28	29		30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49		20

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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

TOKO	TK11235AMTL	TK11235AMTL	U43	-	26
ANALOG DEVICES	AD605AR	AD605AR	N3	-	22
ANALOG DEVICES	AD1582	AD1582	108	_	54
ANALOG DEVICES	AD8032AR	AD8032AR	U7	-	53
NATIONAL SEMICONDUCTOR		NC7S04M5	U42,U6	2	25
		TP-105-01-00	TP1, TP2, TP3, TP4, TP5, TP6	0	21

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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
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Including Multi-Phase Embodiments and Circuit



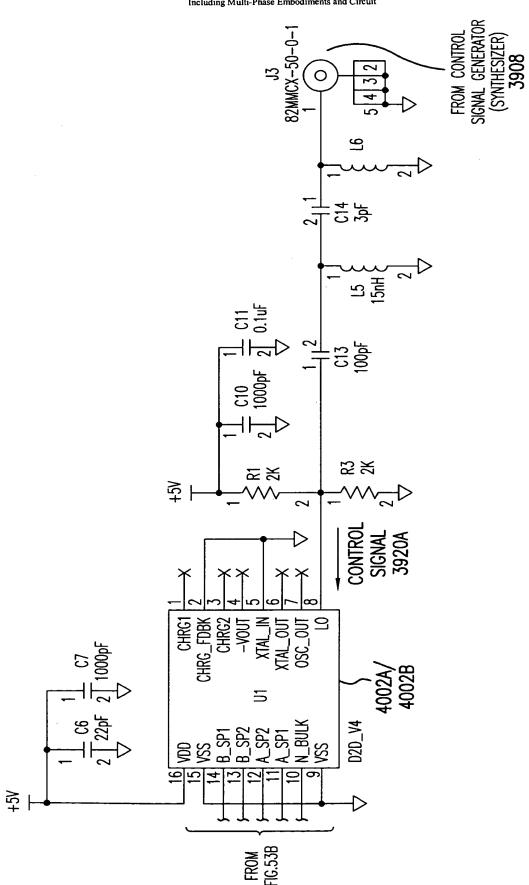


Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.0630003; Group Unit: 2634 Inventors: Sorrells et al. Tel. No.: 202-371-2600 For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit -16.53B MOUNT C15 BOTTOM SIDE AT VIA CONNECTING D2D PIN R17 R12 221 . R13 33.2K £25 1∓ 0 DEG 950 8 1X603 **N**2  $\frac{8}{2}$  $\mathbf{z}$ +2\ 22 14.72 22pF 0.1uF J2 82MMCX-50-0-1 82MMCX-50-0-RF 3924

New Sheet Sheet 78 of 349 New Sheet Sheet 79 of 349 Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.0630003; Group Unit: 2634 Inventors: Sorrells et al.

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For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit



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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

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MANUFACTURER		MURATA		MURATA	MURATA	MURATA	MURATA	MURATA	MURATA	MURATA	BERG	BERG	SUHNER	T0K0	T0K0	T0K0	T0K0	PHILIPS	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PANASONIC	PARKER VISION	ANAREN	ANALOG DEVICES	
PART NIMBER		GRM39Y5V104Z016		GRM39C0G220J050	GRM39X7R104K016	GRM39C0G470J050	GRM39X7R102K050	GRM39X7R101J050	GRM40C0C030B50V	GRM40Y5V105Z016	69190-403	69190-402	82MMCX-50-0-1		LL 1608-F4N7K	LL2012FH15NJ	DNP	BFR520	ERJ3GSYJ202	ERJ3GSYJ510	ERJ3EKF2210	ERJ3EKF3322	ERJ3EKF1001	ERJ3EKF2490	ERJ3GSYJ100	020_V4	1X603	AD8032AR	STB500.641.001 V03.00
PART		0.1uF		22pF	0.1uF	47pF	1000pF	100pF	3pF	1uF	69190-403	69190-402	82MMCX-50-0-1	dNO	4.7nH	15nH	DNP	BFR520	2K	51	221	33.2K	DNP	249	10	020_V4	1X603	AD8032AR	BOARD
REFERENCE		C/R7, C/R15, C16, C17, C18	C19, C21, C22, C23, C24	C1,C3,C6,C8,C9,C12	C2, C4, C11	C5,C15	C10,C7	C13	C14	C20, C25	JP1	JP2	11, 12, 13, 14	L3,L1	L4,L2	15	97	01,02	R1, R3	R2		R5, R6, R8, R13, R14, R16	R9, R17	R10,R18	R11,R19	101	U2	103	
QIY		10		9	3	2	2	1	1	2	-	-	4	2	2		1	2	2	-	2	9	2	2	2	-	1	-	-
ITEM	·			2	3	4	5	9	7	8	6	10	11	12	13	14	15	16	17	138	19	20	21	22	23	24	25	76	27

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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

FIG.55A FIG.55B FIG.55C

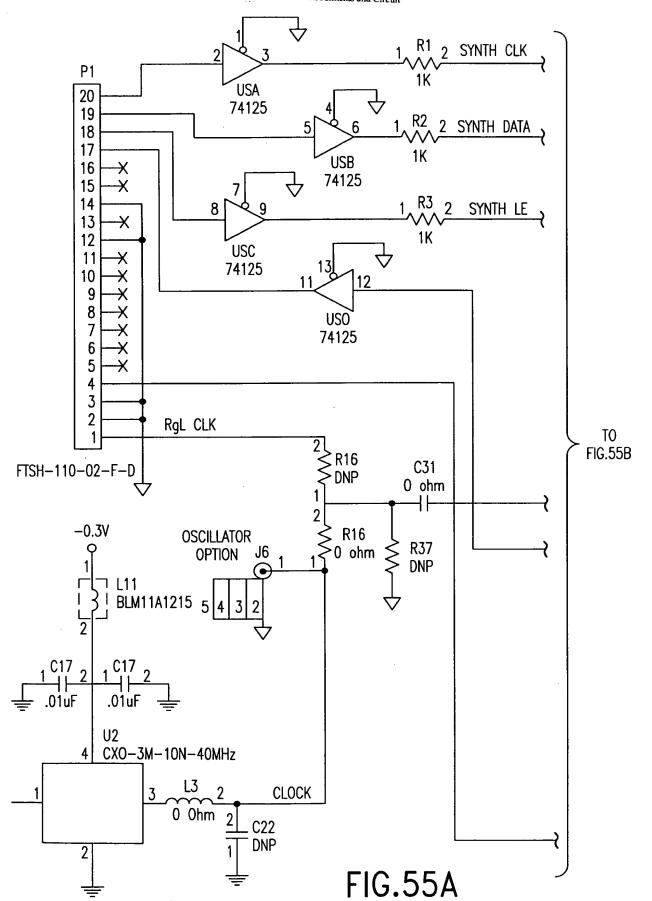
FIG.55

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Inventors: Sorrells et al.

Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit



Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.0630003; Group Unit: 2634 Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit -1.5VL9 BLM11A1215 C6 C1 100pF 100pF **C8** C4 .01uF .01uF 20 19 18 17 16 U1 15 14 C13 1000pF 9 12 TO 10 FIG.55C FROM PE3282A C34 = DNP 2 C20 22pF C32 FIG.55A C33 DNP DNP JP2 2 4 6 -57 8 10 k FTSH-105-02-F-D C23 4.7uF JP3 7 L6 1 2 C23 4.7uF 3 4 TSW-104-08-T-S ALLOW\_CONNECT-TRUE 5 U4 6 1 R36 ± C24 2 0.1 uF C23 TK11233AMTL TBD 4.7uF

FIG.55B

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Inventors: Sorrells et al. Tel. No.: 202-371-2600 For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit L10 BLM11A1215 C2 C2 0.1uF -100uF TP1 R8 2K R9 75 C8 220pF **C7** 2<sup>C9</sup>11 L1 100pF Q1 BFR520 10nH 100pF R10<sub>2</sub> R11 2 1 | 2 C12 6.8pF C10 100pF 3300 1K C11 3.3pF R13 1.5K . C14 1500pF R14 220 \_ C16 R12 13K 12pF FROM FIG.55B CR1 2 BBY51-EG327 C16 4700pF R30 1K R17 75 L12 R19 DNP **R19** DNP BLM11A1215 C35 1000pF L14 J4 82nH C37 C36 82MMCX 8 U6 UPC1879GV 1000pF 1000pF GND

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FIG.55C

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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

ILEM	QTY	TEM QTY   REFERENCE	PART	DESCRIPTION	PART NUMBER	MANUFACT.
-	-	CR1	BBY51-E6327	DIODE, VARACTOR	BBY51-E6327	SIEMENS
2	9	C1,C3,C5,C7,C9,C10	100pF	CAPACITOR, CERAMIC, 100pF, 10%, COG, 0603	GRM39C0C101K050	MURATA
3	7	C29,C2	0.1uF	CAPACITOR, CERAMIC, .1 uF, 10%, X7R, 0603	GRM39X7R104K016AD	MURATA
4	3	C4,C8,C17	.01uF	CAPACITOR, CERAMIC, .01uF, 10%, X7R, 0603	GRM39X7R103K050	MURATA
2	-	90	220pF	CAPACITOR, CERAMIC, 220pf, 5%, COG, 0603	GRM39C0G221J025	MURATA
9	-	011	3.3pF	CAPACITOR, CERAMIC, 3.3pF, 5%, COG, 0603	GRM39C0C3R3B100V	MURATA
7	-	C12	6.8pF	CAPACITOR, CERAMIC, 6.8pF, +/25pF, COC, 0603	GRM39C0G6R8C100V	MURATA
∞	4	C13,C35,C36,C37	1000pF	CAPACITOR, CERAMIC, 1000pF, 10%, X7R, 0603	GRM39X7R102K016	MURATA
6	1	C14	1500pF	CAPACITOR, CERAMIC, 1500Pf, 10%, X7R, 0603	GRM39X7R152K016	MURATA
10	-	C15	12pF	CAPACITOR, CERAMIC, 12pF, 5%, COC, 0603	GRM39C0C120J050	MURATA
=	-	C16	4700pF	CAPACITOR, CERAMIC, 4700pF, 10%, 0603	GRM39X7R472K016	MURATA
12	2	C20,C18	22pF	CAPACITOR, CERAMIC, 22pF, 10%, COG, 0603	GRM36C0G220K050	MURATA
13	4	C22, C32, C33, C34	DNP	CAPACITOR, CERAMIC, , , , 0603	,	MURATA
14	3	C23,C24,C27	4.7uF	CAPACITOR, TANTALUM, 4.7 uF, 10%, 3216	T491A475K006AS	KEMET
15	3	R16,C31,R17	MHO 0	RESISTOR, ZERO OHM, 0603	ERJ3GSY0R00	PANASONIC
19	_	JP1	FTSF-110-02-F-D	HEADER, DUAL ROW 10X2, .050X.050	FTSH-110-02-F-D	SAMTEC
17	-	JP2	FTSH-105-02-F-D	HEADER, DUAL ROW 5X2, .050X.050	FTSH-105-02-F-D	SAMTEC
<u>&amp;</u>	-	JP3	TSW-104-08-T-S	HEADER, SINGLE ROW 4 PIN, .100"	TSW-104-08-T-S	BERG
19	2	<b>մ</b> 5, մ6	82NMCX	RF CONNECTOR	82MMCX-50-0-1	SUHNER
70	_	[1]	18nH	INDUCTOR, 18nH, 10%, 0805	0805CS-180XJBC	COILCRAFT
21	-	13	0 OHM	ZERO OHM JUMPER	RM73ZIJT	KOA
22	9	L4,L6,L9,L10,L11,L12	BLM11A121S	FERRITE BEAD, 0603	BLM11A121S	MURATA
23	-	L14	82nH	INDUCTOR, 82nH, 10%, 0805	LL2012-F82NK	T0K0
24	-	Q1	BFR520	TRANSISTOR, NPN	BFR520	PHILIPS
25	5	R1,R2,R3,R11,R30	1K	RESISTOR, 1K, 5%, 0603	ERF36SYJ102	PANASONIC
76	_	R4	10	RESISTOR, 10 OHM, 5%, 0603	ERJ3GSYJ1R0	PANASONIC

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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
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Including Multi-Phase Embodiments and Circuit

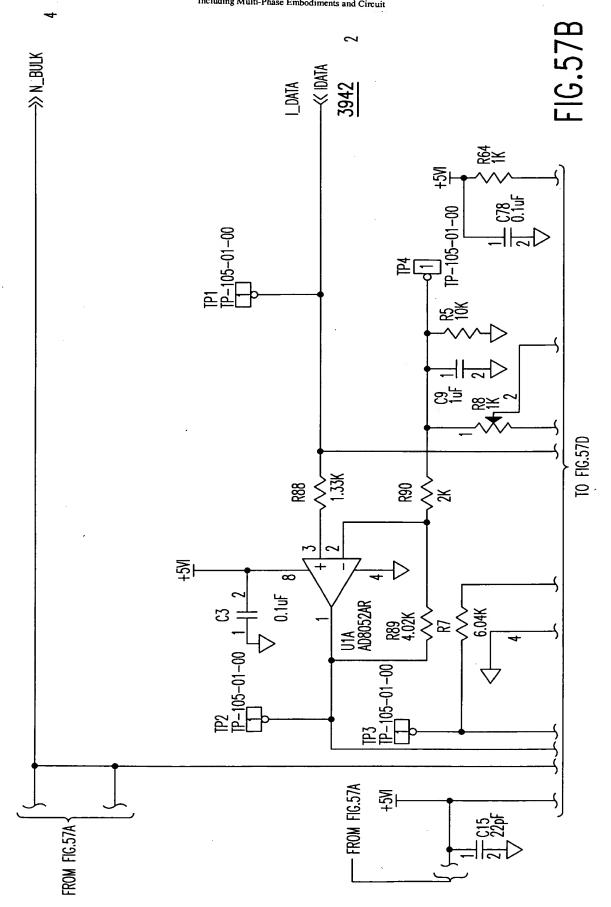
27	_	R8	2K	RESISTOR, 2K,5%,0603	ERJ36SYJ202	PANASONIC
78	_	R9	75	RESISTOR, 75 OHM, 5%, 0603	ERJ36SYJ750	PANASONIC
53	-	R10	3300	RESISTOR, 3.3K,5%,0603	ERJ36SYJ332	PANASONIC
3	_	R12	13K	RESISTOR, 13K,5%,0603	ERJ36SYJ133	PANASONIC
31	_	R13	1.5K	RESISTOR, 1.5K,5%,0603	ERJ36SYJ152	PANASONIC
32	-	R14	220	RESISTOR, 220 OHM, 5%, 0603	ERJ36SYJ221	PANASONIC
33	-	R15	ONP	RESISTOR, ZERO OHM, 0603	ERJ3GSY0R00	PANASONIC
₹	2	R18,R19	ONP	RESISTOR, 91 OHM, 5%, 0603	ERJ3GSYJ910	PANASONIC
35	_	R36	180	RESISTOR, ZERO OHM, 0603	ERJ3GSY0R00	PANASONIC
38		R37	dNO	RESISTOR,,,0603		PANASONIC
37	-	1P1	TEST POINT	,		
38	-	U1	PE3282A	IC, SYNTHESIZER	PE3282A	PEREGRINE
33	-	Zn I	CX0-3M-10N-40MHz	XTAL OSC, 40MHz	CX0-3M-10N-40MHZ A/I STATEK	STATEK
\$	-	104	TK11233AMTL	VOLTAGE REGULATOR, 3.5V	TK11235BM	TOK0
41	_	105	74125	IC, BUFFER	NC74LCX125DT	MOTOROLA
42	-	90	UPC16786V	IC,RF AMPLIFIER	UPC1678GV	NEC
43	-		STB500.641.008 V03.00	BOARD		

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For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

FIG.57B	FIG.57D
FIG.57A	FIG.57C

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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit TO FIG.57B TO FIG.57B-0.1 F 85 Ş Shunt N\_BULK 몽 **S**S TO FIG.57C &<u>÷</u> TRANSMITTER 3910 IP-105-01-00 호 <u>1</u>3 **BLM11A121S** 112 113 330nH UPC1678 100pF 632 **U15** R62 FIG.57A  $\infty$ 22 . C90 100pF 窓具 . 190 \<u>₹</u> 80 80 53 R 833 \$\$ ≥ ≈ 59190-403 R 22 FROM CONTROL SIGNAL GENERATOR 3908 (SYNTHESIZER) 82MMCX-50-0-1 **P2** \$8\$

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FIG.57C

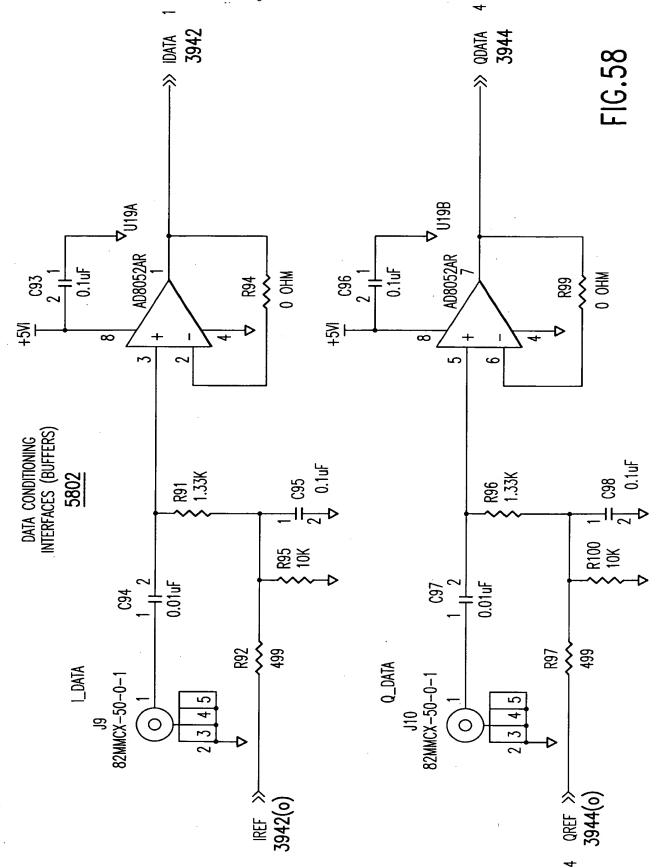
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Tel. No.: 202-371-2600

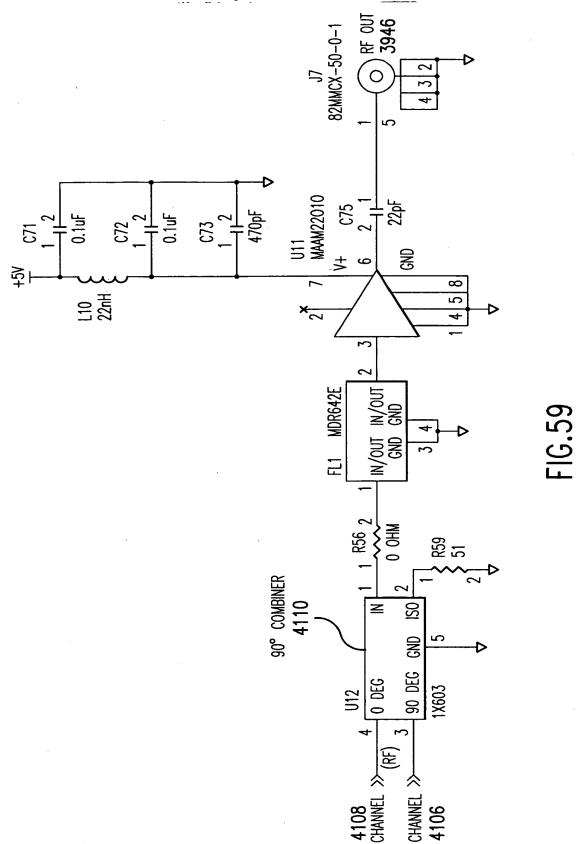
For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit 11 C79 11 C80 12 1000pf →> I CHANNEL 4106 JUMPER TO TP20 IF REQUIRED 86 ¥ #<del>[~</del>|> **₩** 욿 ₹ FROM FIG.57B R11 1.5K 잗 0 ohm  $\approx$ జ\ 널 技 FROM FIG.57C

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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit



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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

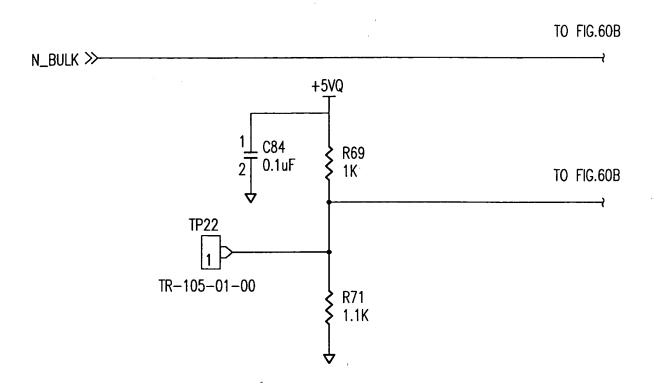


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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
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Including Multi-Phase Embodiments and Circuit

,	FIG.60D	
	FIG.60C	
	FIG.60B	
	FIG.60A	

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For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit



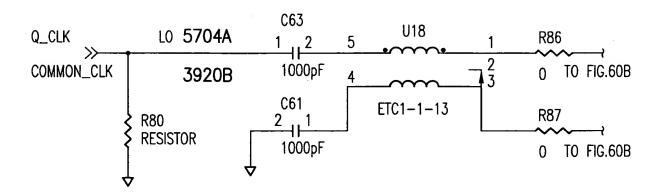
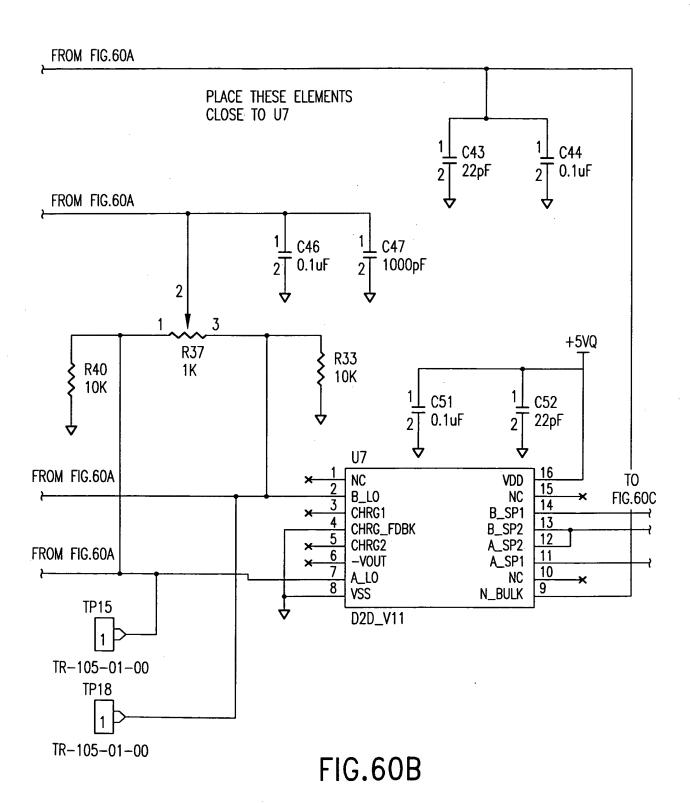


FIG.60A

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Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit

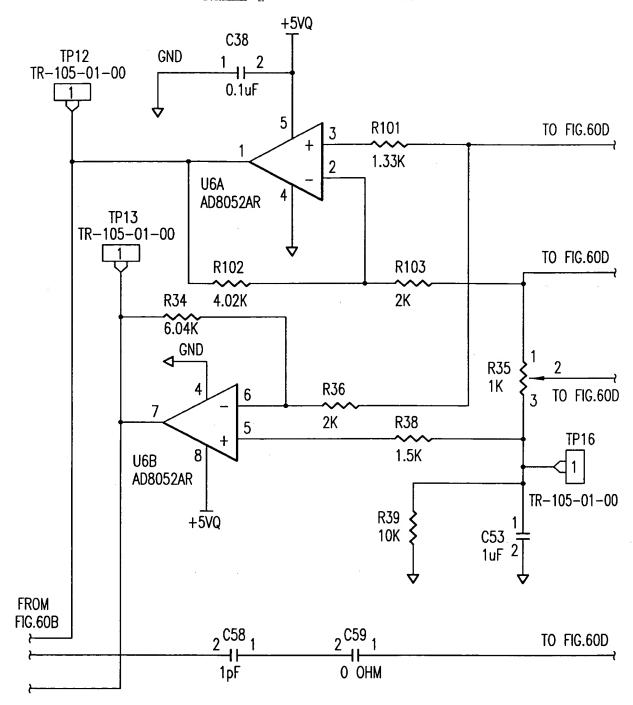
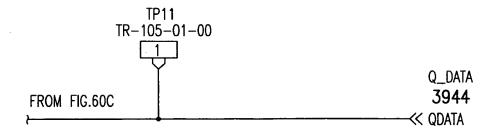


FIG.60C

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Inventors: Sorrells et al.
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Including Multi-Phase Embodiments and Circuit



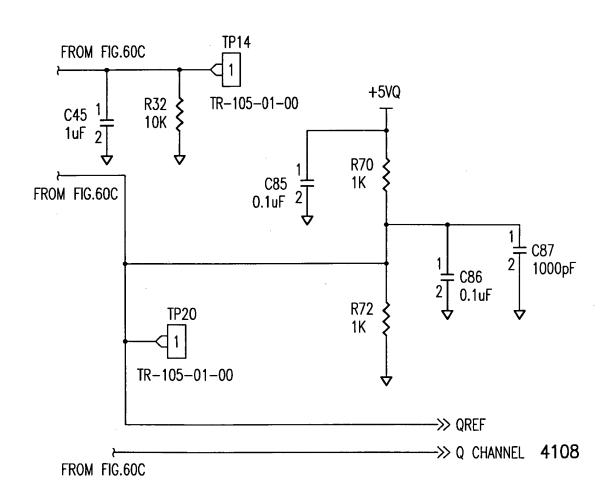


FIG.60D

FIG.61A

MANUFACTURER **PANASONIC PANASONIC PANASONIC PANASONIC PANASONIC** COILCRAFT MURATA MURATA MURATA MURATA MURATA MURATA MURATA SUHNER MURATA MURATA SOSHIN BOUNS KEMET 開器 GRM40Y5V105Z016 GRM39X7R104K016 GRM39C0C220J050 CRM39X7R102K050 GRM39C0C471J050 GRM39X7R103K016 GRM39COCxxxx50V 3RM39C0C010B50V T491A105M016AS F491A475K006AS ECU-V1H101JCV 82MCX - 50 - 0 - 1\_L1608-F22NK LL2012-FR33K **ERJ3EKF 1002** 3224W-1-102 ERJ3GSY0R00 PART NUMBER ERJ3EKF2001 ERJ3EKF 1501 ERJ3EKF6041 **BLM11A121S** 69190-402 69190-403 MDR642E 82MMCX-50-0-1 BLM11A121S 69190-403 MDR642E 0.01uF 1000F 0 ohm ah m 330nH 470pF 100pF Shunt 22nH . 곳 22pF PART 늗 矣 ¥  $\approx$ C3, C6, C8, C10, C14, C38, C44 C46,C51,C71,C72,C77,C78, C79, C84, C85, C86, C93, C95 C11, C23, C25, C47, C61, C63 C5, C7, C15, C43, C52, C75 R5, R6, R12, R13, R32, R33 09,016,045,053,089 R39, R40, R95, R100 R34, R7 R9, R36, R90, R103 R8, R10, R35, R37 17, 38, 39, 310 R56, R94, R99 C90, C91, C92 REFERENCE 26,098 C58,C21 C82,C33 C59,C35 C80, C87 C94,C97 R38,R11 **C73** 88 딢 JP2 P1 5 21 ထ  $\infty$ 4 7 IEM IEM 2 9  $\infty$ <u>0</u> 9 20  $\infty$ တ

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For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit

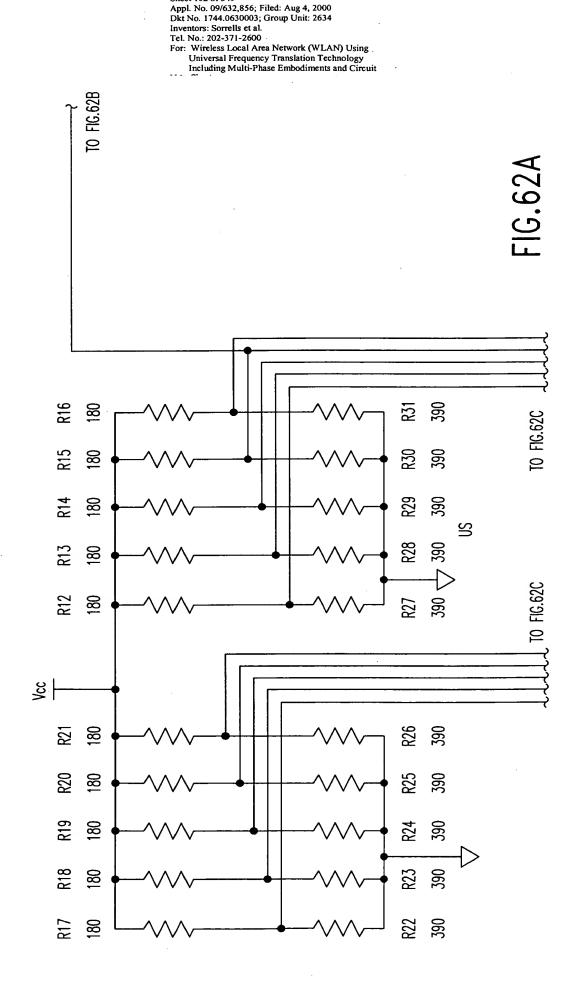
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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

PANASONIC	PANASONIC		PANASONIC	PANASONIC			PANASONIC	PANASONIC	PANASONIC					ANALOG DEVICES	PARKER VISION	MACOM	ANAREN	ANALOG DEVICES	NEC	MINI-CIRCUITS	V05.10
ERJ36SYJ510	ERJ3GSY0R00		ERJ3EKF1001	ERJ3EKF1101			ERJ3EKF1331	ERJ3EKF4021	ERJ3EKF4990					AD8052AR	020_V11	MAAW22010	1X603	AD1582	UPG1678GV	ADP-2-10-75	8500.641.021
51	0		1K	1.1K	RESISTOR	R	1.33K	4.02K	499	TP-105-01-00				AD8052AR	020_V11	MAAM22010	1X603	AD1582	UPC1678	ADP-2-10-75	BOARD
R59	R60, R61, R62, R84, R85, R86,	R87	R63, R64, R66, R69, R70, R72	R71,R65	R80, R79	R81, R82, R83	R88, R91, R96, R101	R102,R89	R92, R97	TP1, TP2, TP3, TP4, TP5, TP6,	TP8,TP9,TP11,TP12,TP13,	TP14, TP15, TP16, TP18, TP19,	TP20,TP21,TP22	01,06,019	U7,U2	U11	1112	U14	U15	010	
-	Ĺ		9	2	2	~	4	7	2	19				~	7	-	-	-	-		_
25	76		27	28	29	30	31	32	33	34 19				35	36	37	38	39	40	41	42

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Inventors: Sorrells et al.
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For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

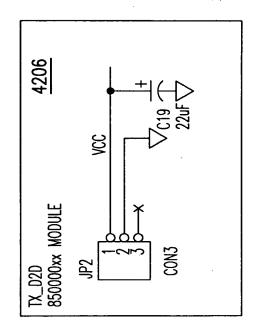
FIG.62A	FIG.62B
FIG.62C	FIG.62D
FIG.62E	FIG.62F
FIG.62G	FIG.62H
FIG.62I	

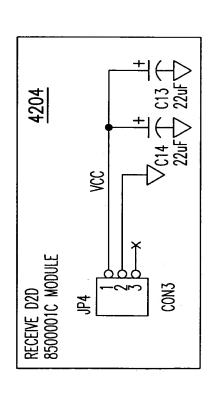
FIG. 62



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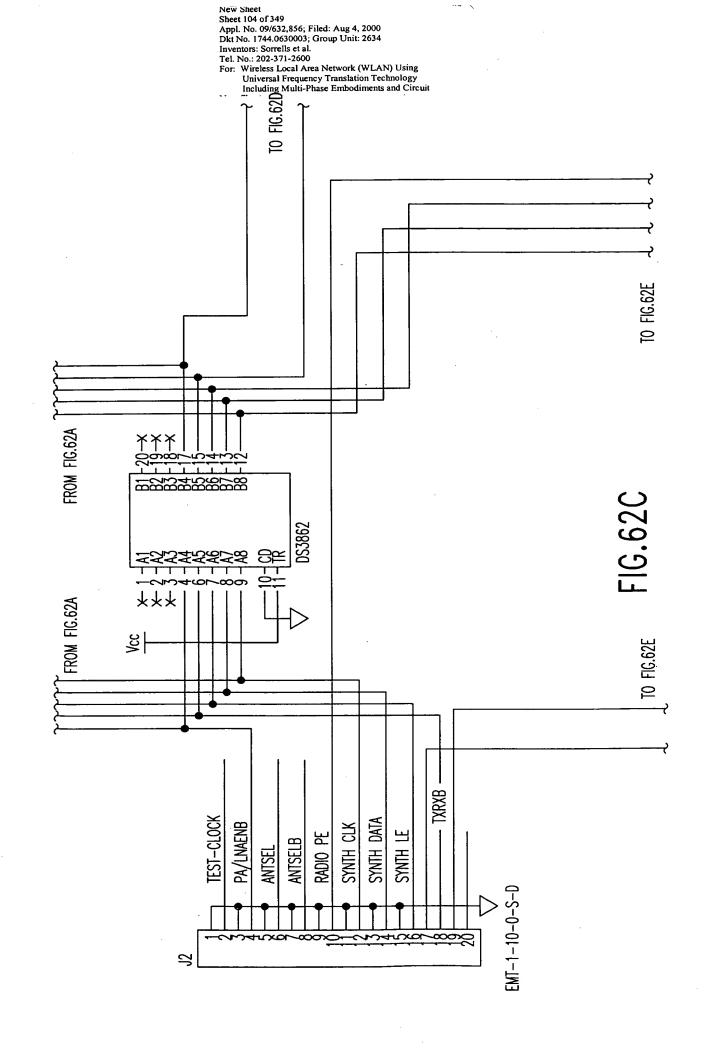
New Sheet New Sheet
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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
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Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit





0 XT ≊ ≊ 4204 HEADER 7X2 JP2 DEMODULATOR 8500003K MODULE TX/RXB ဗ္ဗ FROM FIG.62A

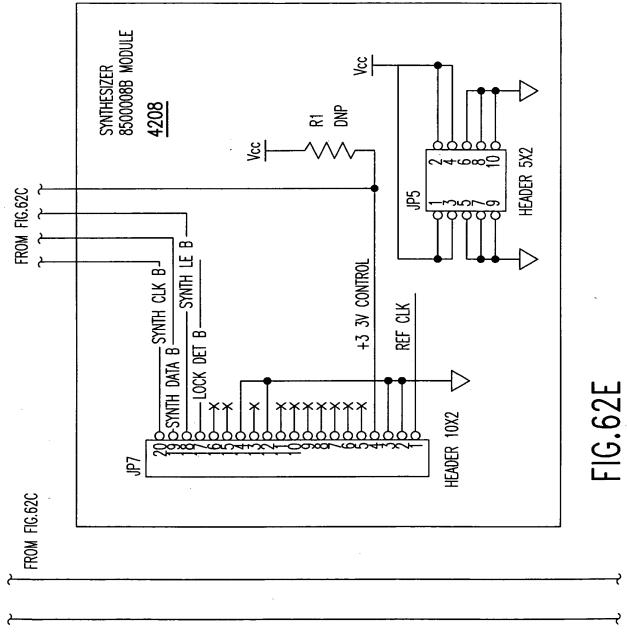
FIG.62B



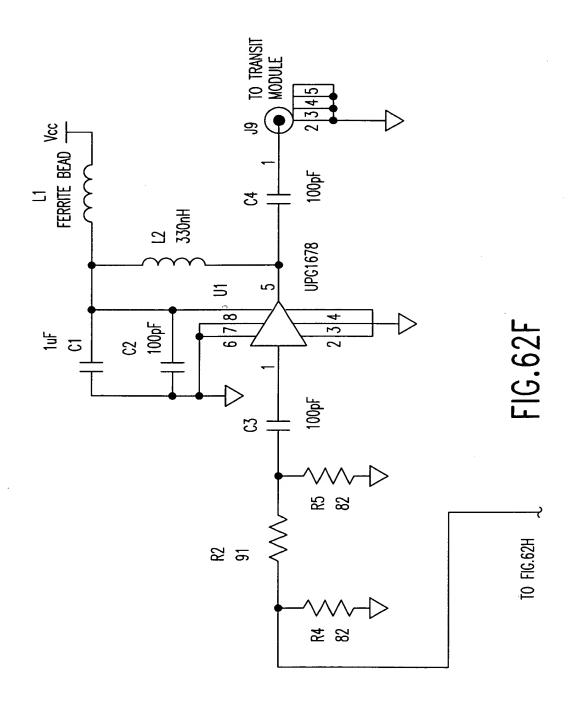
New Sneet
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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600 For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit \$ ma 황 HEADER 7X2 FIG.62D LNA/PA 8500002C MODULE 4212 CON3 FROM FIG.62C

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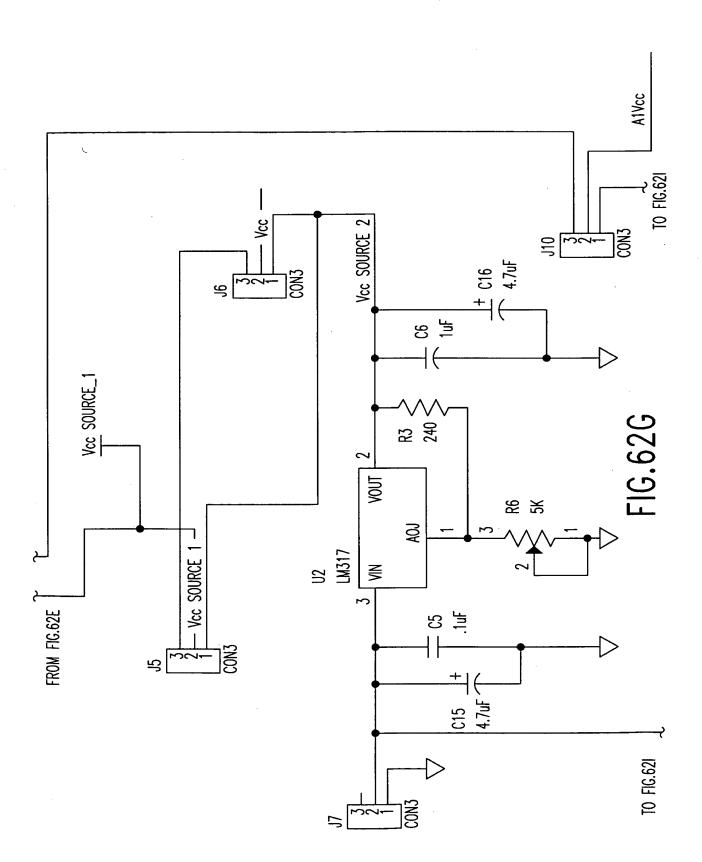
New Sheet
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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
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Including Multi-Phase Embodiments and Circuit



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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit 5 4 3 FERRITE BEAD 100pF L4 330nH 3  $\infty$  $C_{2}$ ஐ 5 FIG.62H R11 82 FROM FIG.62F တ R10 < 82 4 2 ONS ONS SUM PORT 2

New Sheet

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Inventors: Sorrells et al.

Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using

Universal Frequency Translation Technology

Including Multi-Phase Embodiments and Circuit

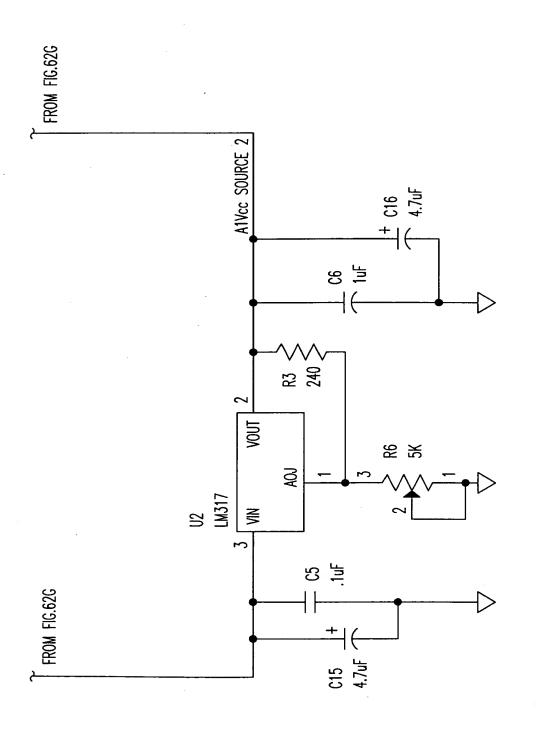
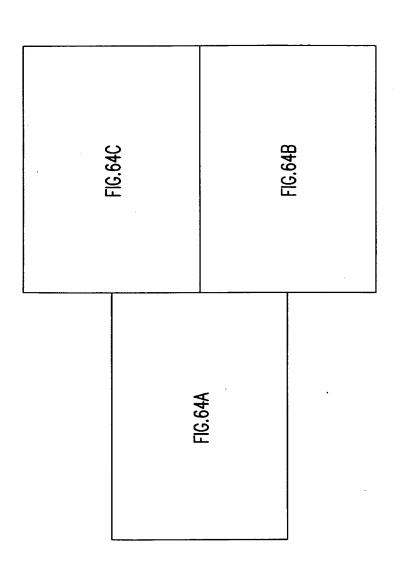


FIG.621

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Inventors: Sorrells et al.
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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

FIG.64

Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit 100 OHM, L=200 mil, 8pF W=10.7 mil 50 OHM, L=100 mil, W=54 mil ## 8# ## 8# **OUTPUT PORTS** UPG152T SWITCH LOGIC TABLE 2,04 #8## PCB MATERIAL=FR4, THICKNESS=0.031 CONTROL INPUTS VCONT2 80 OHM, L=100 mil, W=20 mil 102 OHM, L=220 mil, 2 BIAS W=10 mil FIG.64A OHM, L=200 mil 2<u>L</u> C11 1 10pF W=30.7 mil 몽 Vcont2 0UT2 29 4212 Vcont1 BLM21A801R PART IS "OFF" Part is "on" CONDITION . C22 100pF IN/ONT GND 83 TXAMP PC +5\ 0 2 TXAMP PC >> +5VTX ↔ 2 +5VTX >> 2 VCONT2 >> ~ S

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Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.0630003; Group Unit: 2634

Appl. No. 09/632,850; ...

Appl. No. 1744.0630003; Group Unit: 202

Inventors: Sorrells et al.

Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit 2 4 ~ FIG.64B MDR642E N/OUT GND C20 1 2 2 0.1 uF Se <del>\*</del> 8 L6 22nH 2 4 88  $\simeq$ L [2] S +5VRX1 <del>\*</del> ω L5 22nH 2 4 83 8 FROM FIG.64A

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Inventors: Sorrells et al.

Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit R 73 R R16 R 82  $\mathbb{Z}$  $\alpha$  $\sim$ [3 22 매 4 2 <u></u> SS <del>+</del>  $\Xi$ 4 5 ONS ONS 9 R17 R R18 R19 R FROM FIG.64A

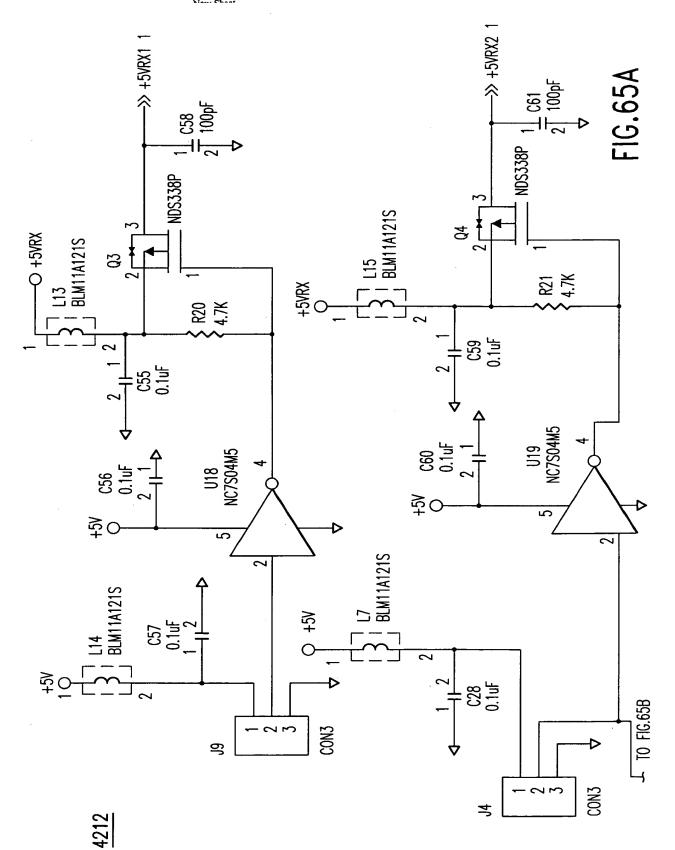
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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
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	FIG.65C	FIG.65E
FIG.65A	FIG.65B	FIG.65D

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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

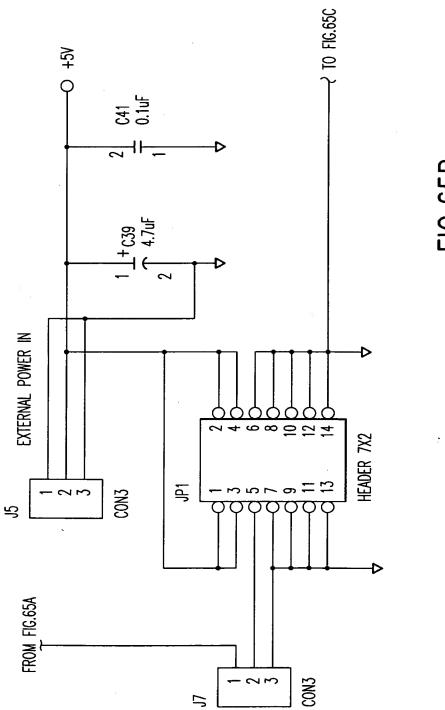
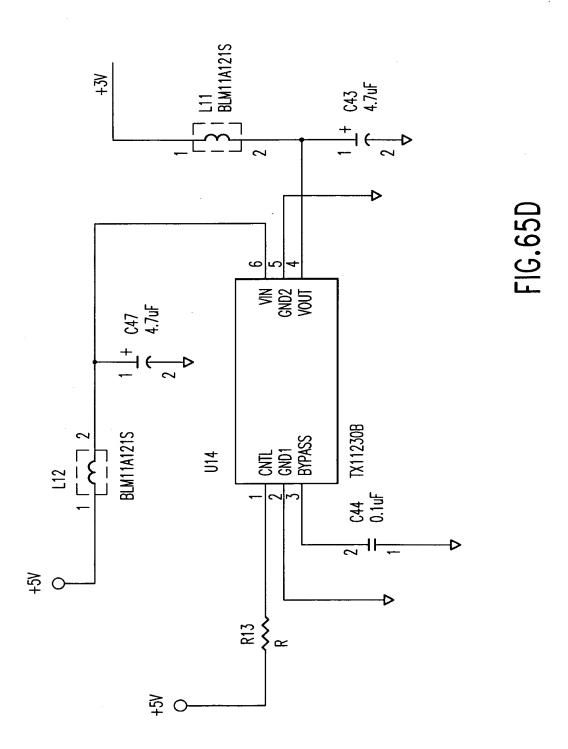


FIG.65B

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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
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Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit



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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

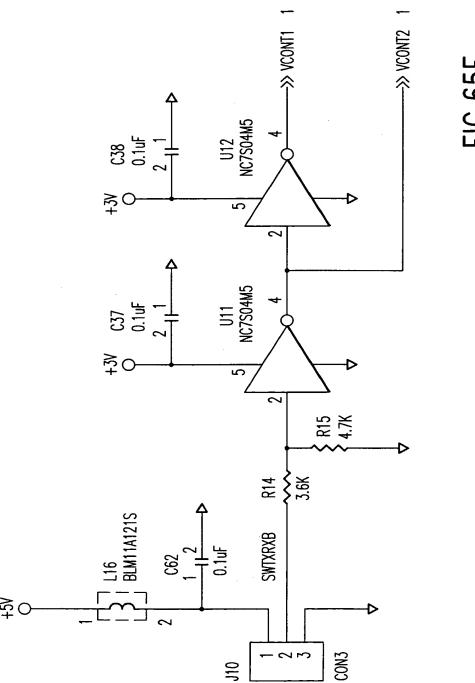


FIG.65E

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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

	TEM OTY	REFERENCE	PART	MANUFACT.	PART DESCRIPTION	PART NUMBER
1	24	C1,C2,C3,C5,C6,C17,C18,	0.1uF	MURATA	.1uF,0603,X7R,20%,16V	GRM39X7R104M016
		C19, C20, C28, C35, C36, C37,				
		C38, C40, C41, C44, C48, C55,				
		C56, C57, C59, C60, C62				
2	_	C4	330pF	MURATA	330pF,0603,COC,10%,50	GRM39C0G331K050
2	2	C10,C7	22pF	MURATA	22pF,0603,C0G,10%,50	GRM30C0G220K050
4	4	C8, C9, C23, C24	470pF	MURATA	470pF,0603,C0C,10%,50	GRM39C0G471K050
5	9	C11, C13, C25, C26, C27, C46	10pF	MURATA	10pF, 0603, COC, 10%, 50	GRM39C0C100K050
9	_	C12	8pF	MURATA	8pF,0603,C0C,10%,50	GRM39C0G080K050
7	8	C15, C16, C21, C22, C50, C54	100pF	MURATA	100pF,0603,COC,10%,50	GRM39C0G101K050
		C58, C61				
∞	3	C39, C43, C47	4.7uF	PANASONIC	4.7uF TANTALUM,16V	ECS-T1CY475R
ნ	-	C52	33pF	MURATA	330pF,0603,C0C,10%,50	GRM3C0G330K050
9	2	FL1,FL2	MDR642E	NIHSOS	2.4-2.5GHz BPF	MDR642E
=	_	JP1	HEADER 7X2	SAMTEC	DUAL ROW, 7 PINS PER ROW	FTSH-107-01-F-D
12	3	11,12,13	82MMCX-50-0-1	SUHNER	RF CONNECTOR	82MMCX-50-0-1
13	9	14, 15, 16, 17, 19, 110	SN03	BERG	3 PIN HEADER W RETENTIVE LEG	69190-403H
14	2	L10,L1	BLM21A601R	MURATA	600 OHMS@100MHz,500mA FERRITE BEAD	BLM21A601R
15	4	12,13,15,16	22nH	COILCRAFT	22nH,0805CS (2012),5%	0805CS-220X-BC
16	9	L7,L8,L9,L11,L12,L13,L14,	BLM11A121S	MURATA	RF BEAD	BLM11A121S
		L15,L16				
17	4	01,02,03,04	NDS336P	NATIONAL	P-CHANNEL FET	NDS336P
18	12	R1,R2,R5,R6,R7,R9,R11,	В	PANASONIC		
		R13,R16,R17,R18,R19				
19	5	R3,R4	100	PANASONIC	0603,100,5%,1/16W	ERJ-36SY-J-101
20	5	R10, R12, R15, R20, R21	4.7K	PANASONIC	0603,4.7K,5%,1/16W	ERJ-3GSY-J-472

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Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

	_	-		<u></u>					1165 21	ind Ci	Curi
ERJ-36SY-J-362						MAAM22010	UPC152TA	NC7S04M5	TK11230B	RF2128P	R500 641 024 VOI
0603,3.6K,5%,1/16W	,L=100 MIL,W=20 MIL 80 OFM,L=100 MIL,W=20 MIL	L=100 MIL,W=54 MIL 50 OHM,L=100 MIL,W=54 MIL	M,L=220 MIL, W=10 MIL 102 OHM,L=220 MIL, W=10 MIL	L=200 MIL, W=30.7 MIL 67 OHM, L=200 MIL, W=30.7 MIL	, L=200 MIL, W=10.7MIL   100 OHM, L=200 MIL, W=10.7 MIL	2.4-2.5 GHz LNA	RF SWITCH	INVERTER	VOLTAGE REGULATOR	MEDIUM POWER LINEAR AMPLIFIER	ROARD
PANASONIC	MIL, W=20 MIL	AIL, W=54 MIL	MIL, W=10 MIL	AIL, W=30.7 MIL	MIL, W=10.7MIL	MACOM	NEC	NATIONAL	T0K0	RFMD	
3.6K	80 OHM, L=100 I	50 OHM,L=100	102 OHM, L=220	67 OHM, L=200 I	100 OHM,L=200	MAAM22010	UPC152TA	NC7S04M5	TKN11230B	RF2128P	
R14	11	12	13	74	15	102, 103, 106, 107	U4	U11,U12,U16,U18,U19	U14	117	
-		-	-	_	_	4	_	5	_	-	-
	22	23	24	25	26	77	82	23	2	31	33

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Inventors: Sorrells et al.
Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

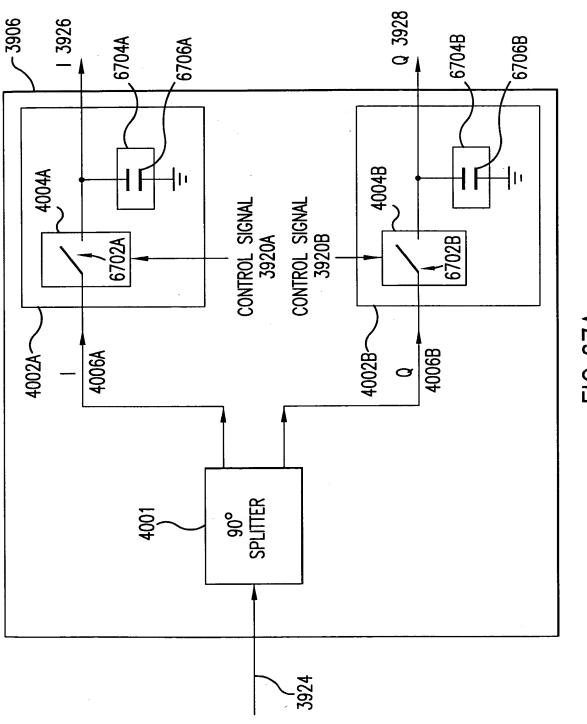


FIG.67A

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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

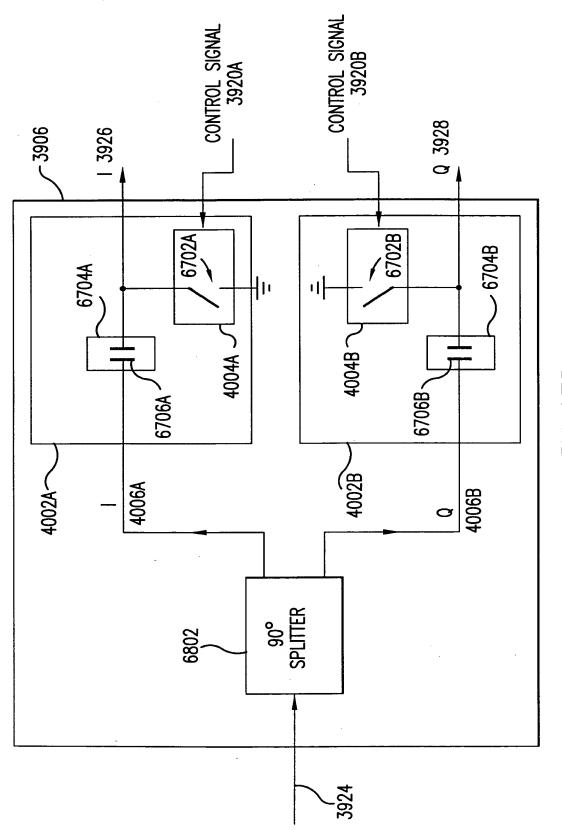
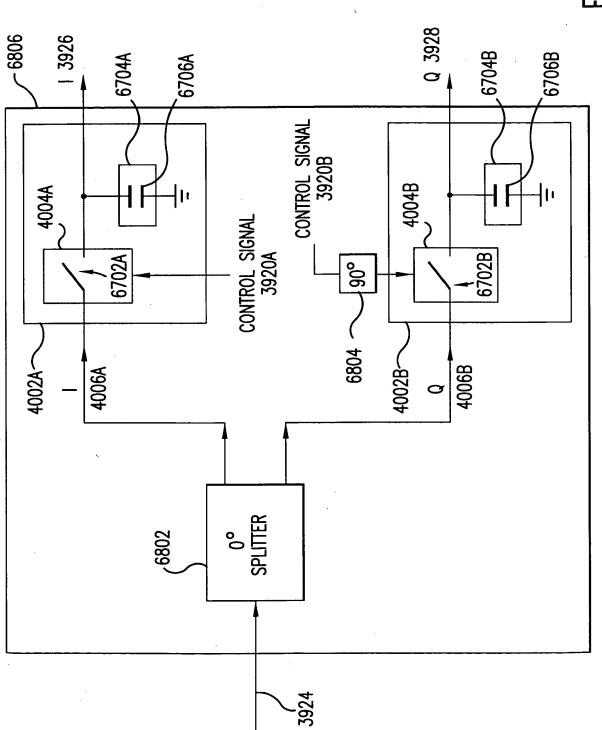


FIG.67B

FIG.68A



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Inventors: Sorrells et al.
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For: Wireless Local Area Network (WLAN) Using
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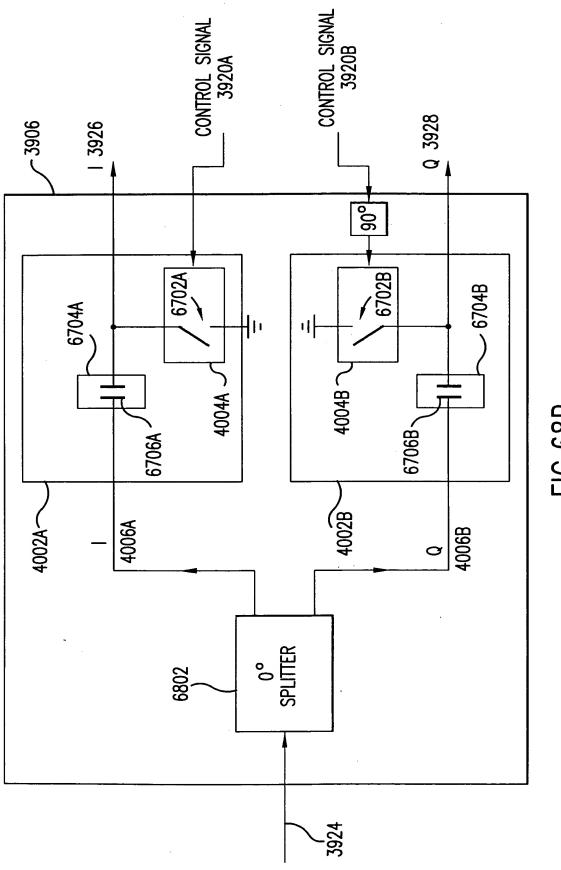
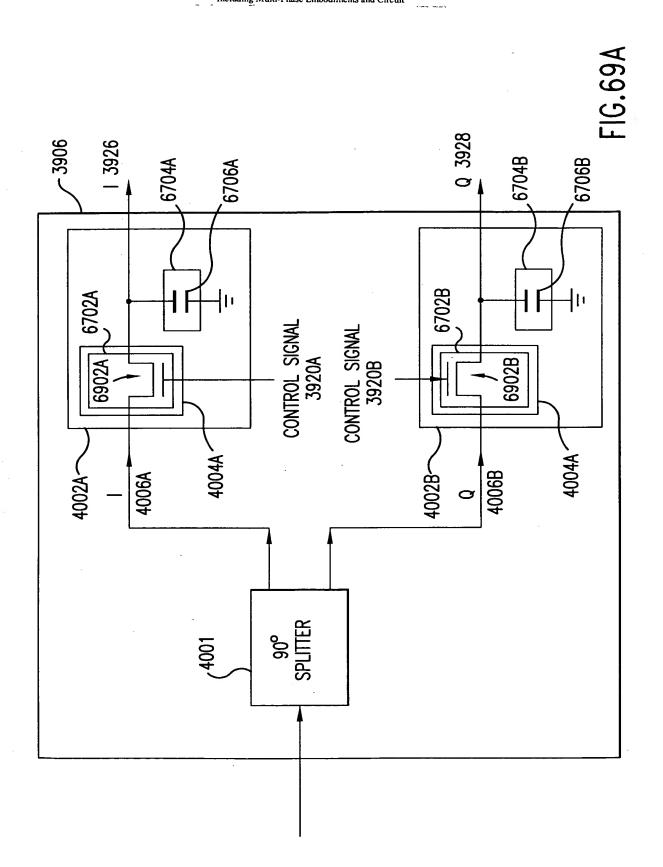


FIG.68B

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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit CONTROL SIGNAL 3920A CONTROL SIGNAL 3920B FIG.69B Q 3928 .3306 3926 4004B 6702B 6702A 6704A 6704B 6902B 6902A 4004A 6706B 4006A

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For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit

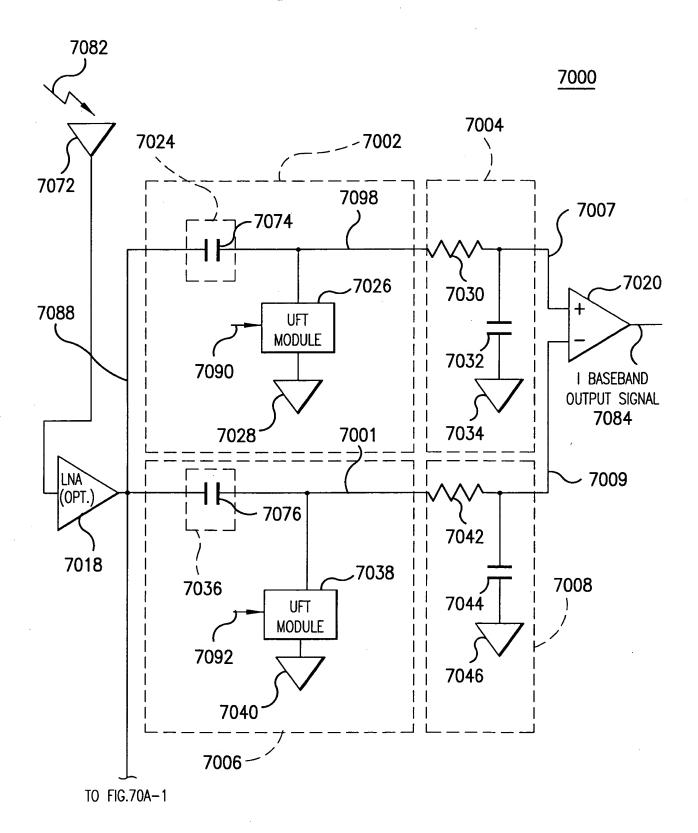
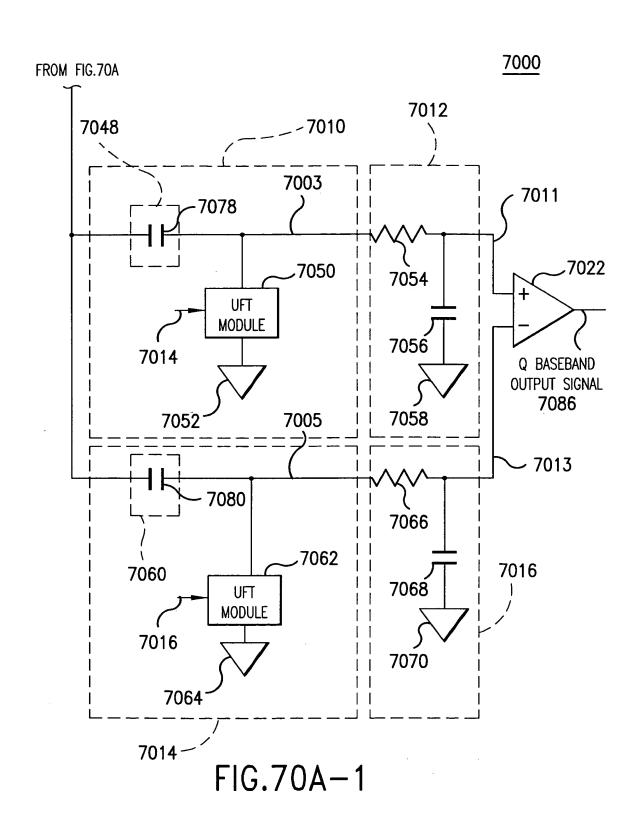


FIG.70A

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Dkt No. 1744.0630003; Group Unit: 2634
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For: Wireless Local Area Network (WLAN) Using
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Inventors: Sorrells et al.
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For: Wireless Local Area Network (WLAN) Using

Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit

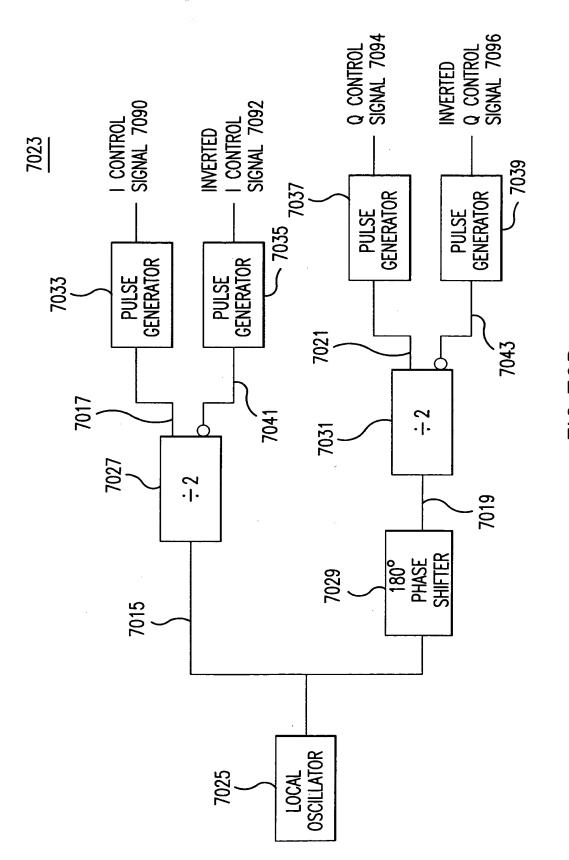


FIG.70B

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Inventors: Sorrells et al.

Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit

LOCAL OSCILLATOR SIGNAL 7015

HALF FREQUENCY LO SIGNAL 7017

PHASE SHIFTED LO SIGNAL 7019

HALF FREQUENCY PHASE SHIFTED LO SIGNAL 7021

I CONTROL SIGNAL 7090

INVERTED I CONTROL SIGNAL 7092

Q CONTROL SIGNAL 7094

INVERTED Q CONTROL SIGNAL 7096

COMBINED CONTROL SIGNAL 7045

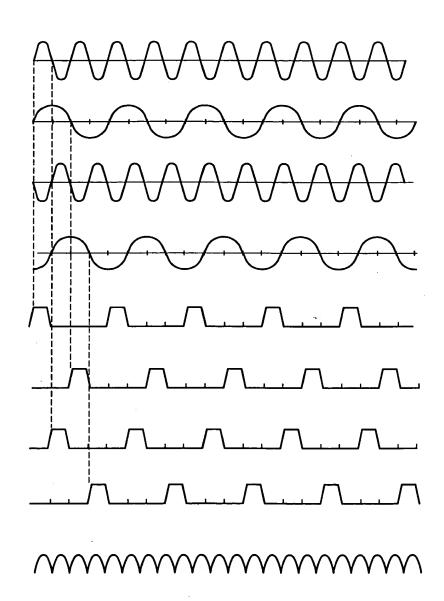
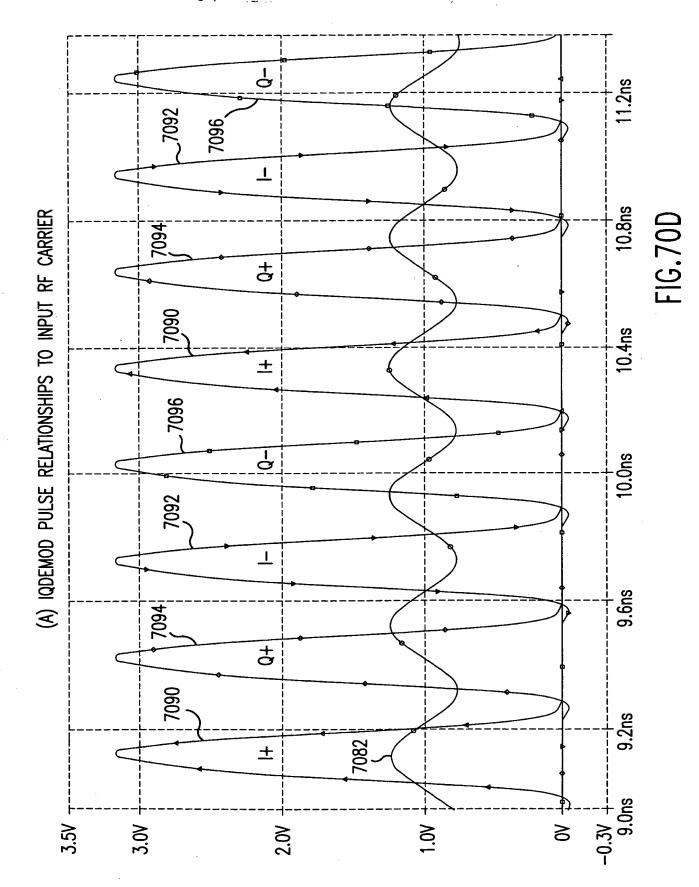


FIG.70C

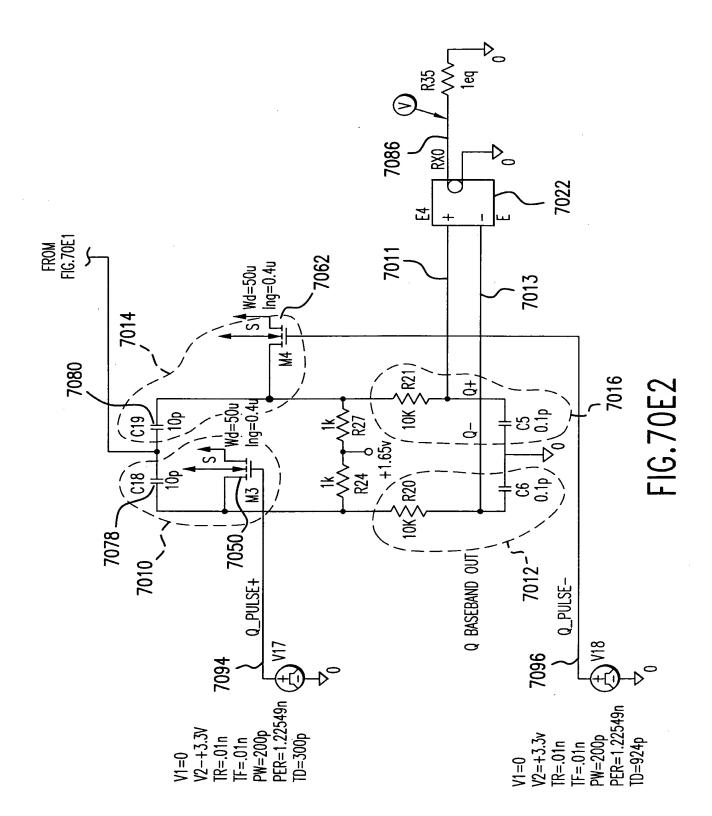
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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit



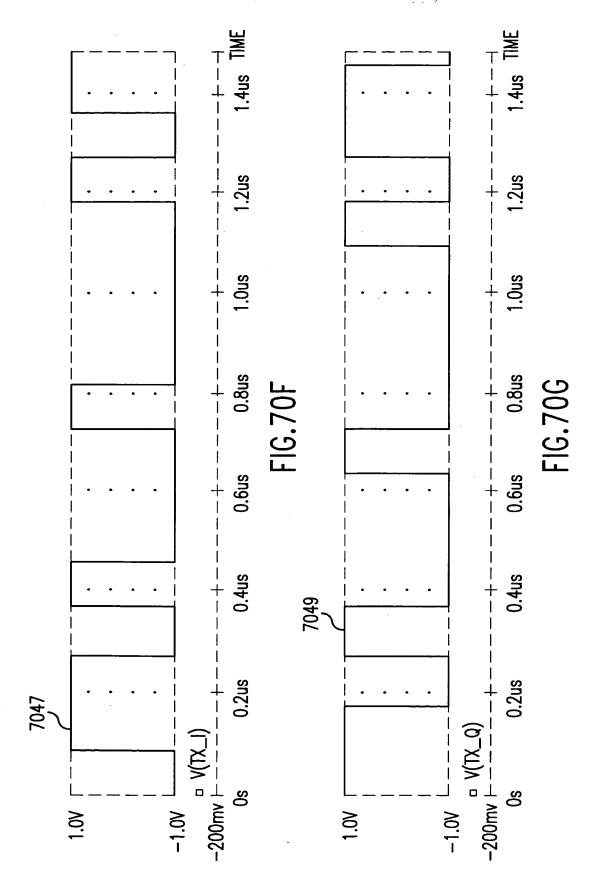
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Sheet 135 of 349
Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al. Tel. No.: 202-371-2600 For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit \$ \$ 1eq CONTINUE FIG.70E2 7084 ≊ 7076 + C13 FIG.70E1 **R**22 7074 I BASEBAND OUT PULSE+ PULSE-22  $\aleph$ 7090 TR=.01n F=.01n £\$ **₹**₽ 0=0 QPSK

Replacement Sheet

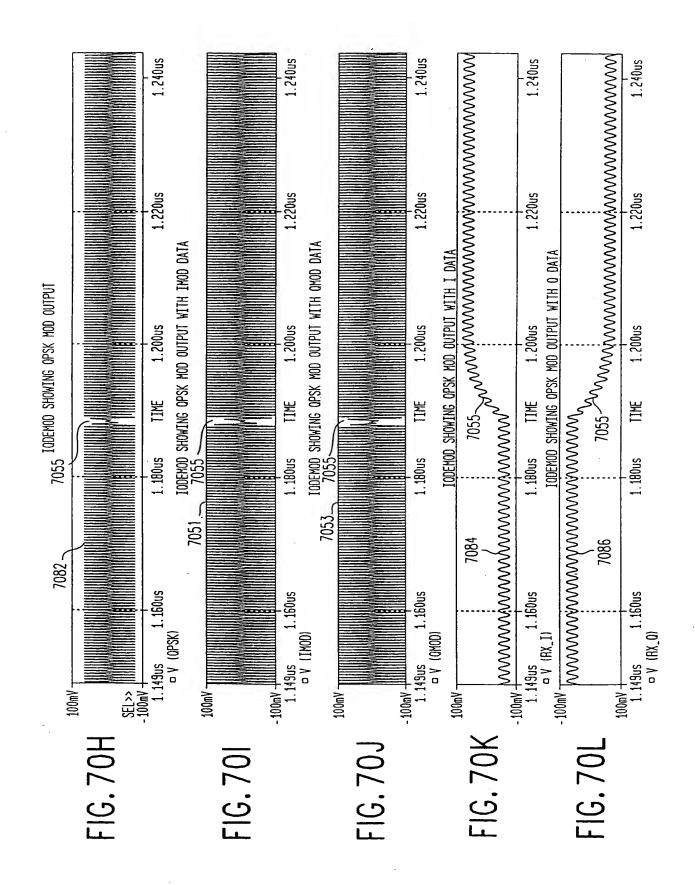
New Sheet
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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
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Tel. No.: 202-371-2600
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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

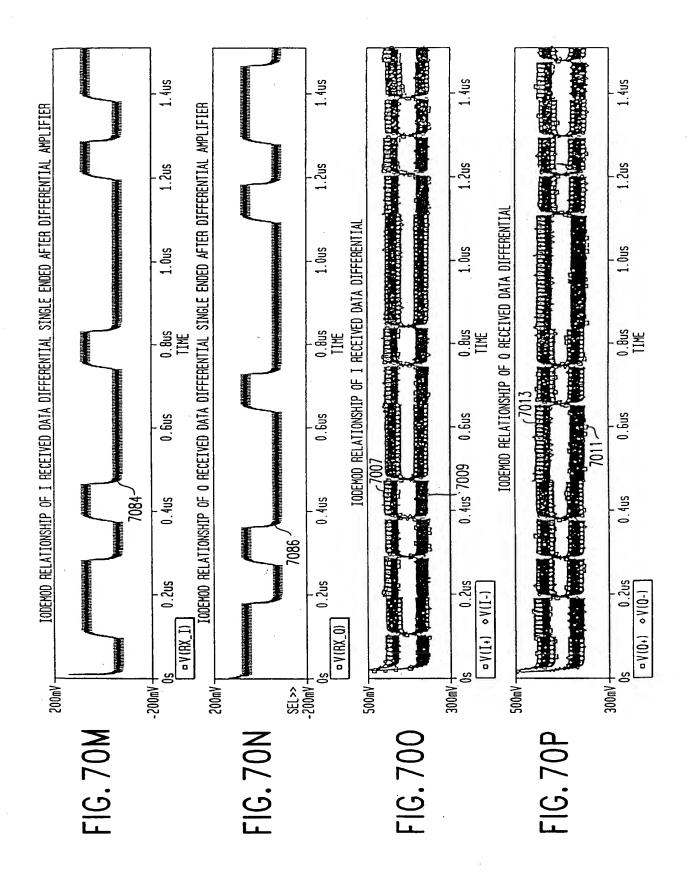


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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
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Including Multi-Phase Embodiments and Circuit



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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit

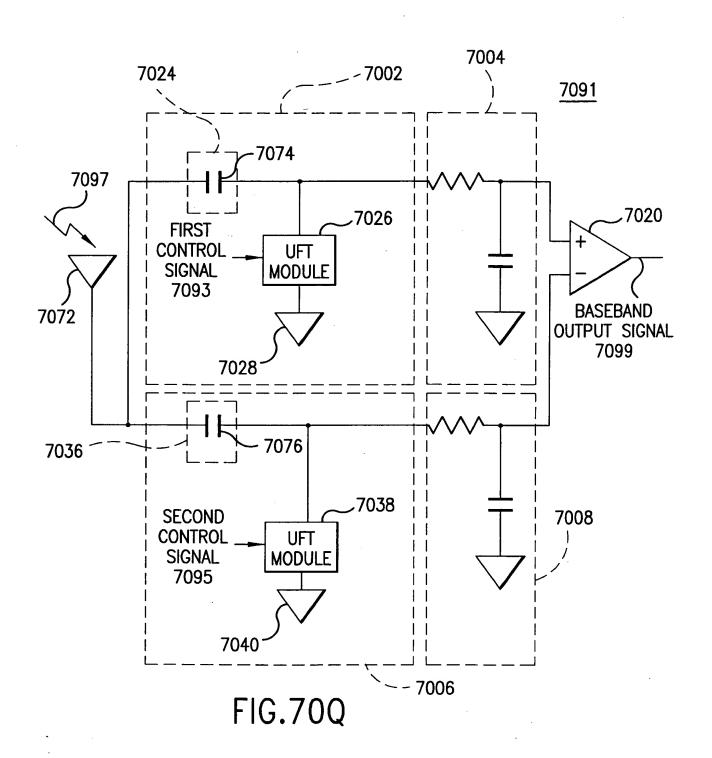


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Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit

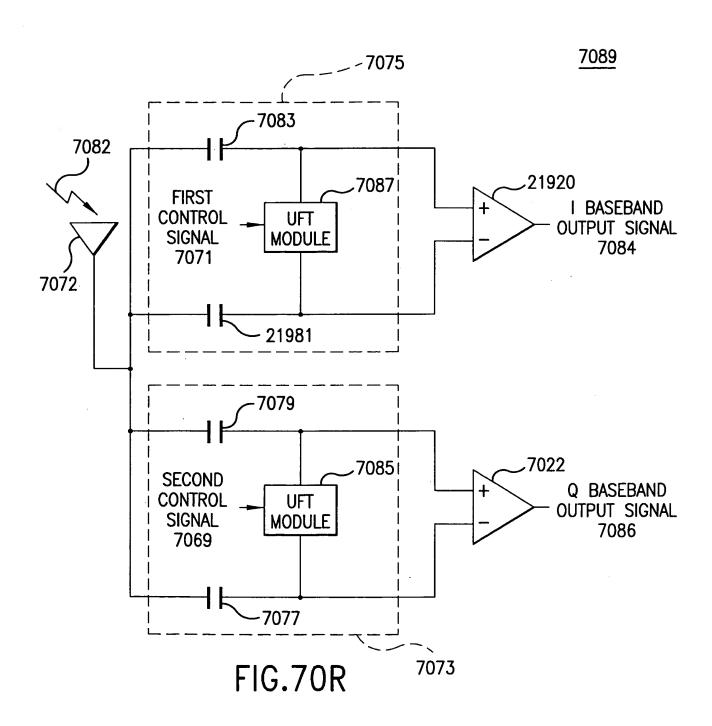


Replacement Sheet

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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.

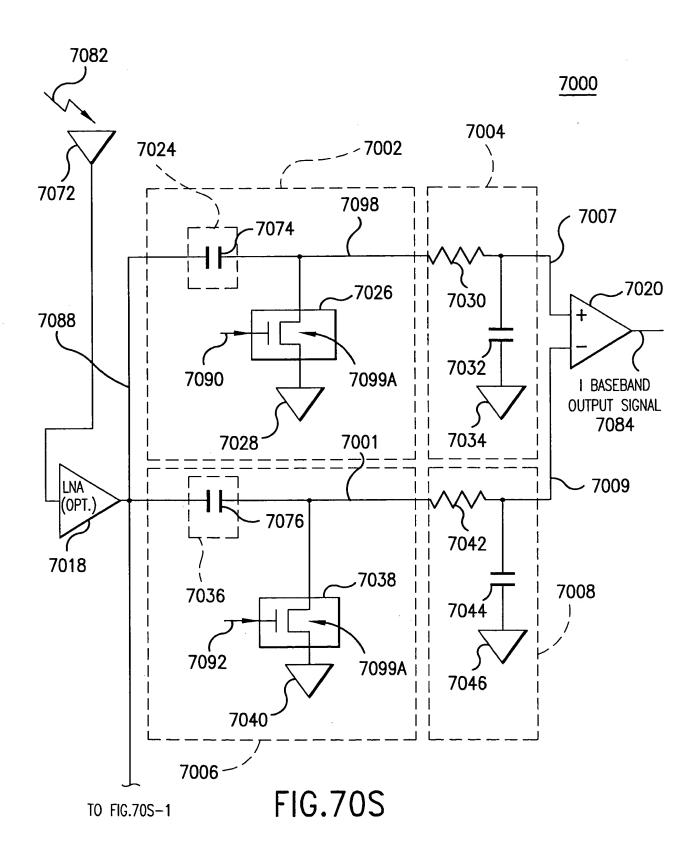
Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit



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Inventors: Sorrells et al.
Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit



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Dkt No. 1744.0630003; Group Unit: 2634

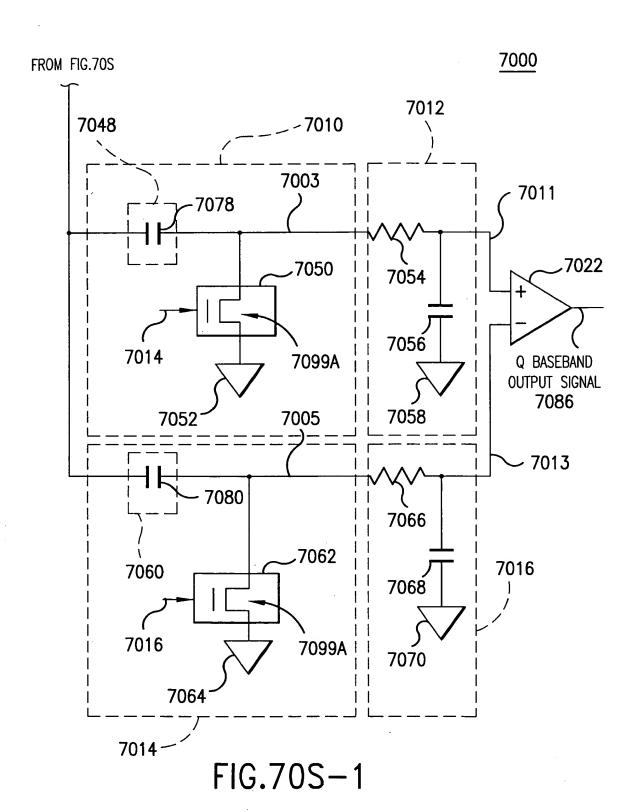
Inventors: Sorrells et al.

Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using

Universal Frequency Translation Technology

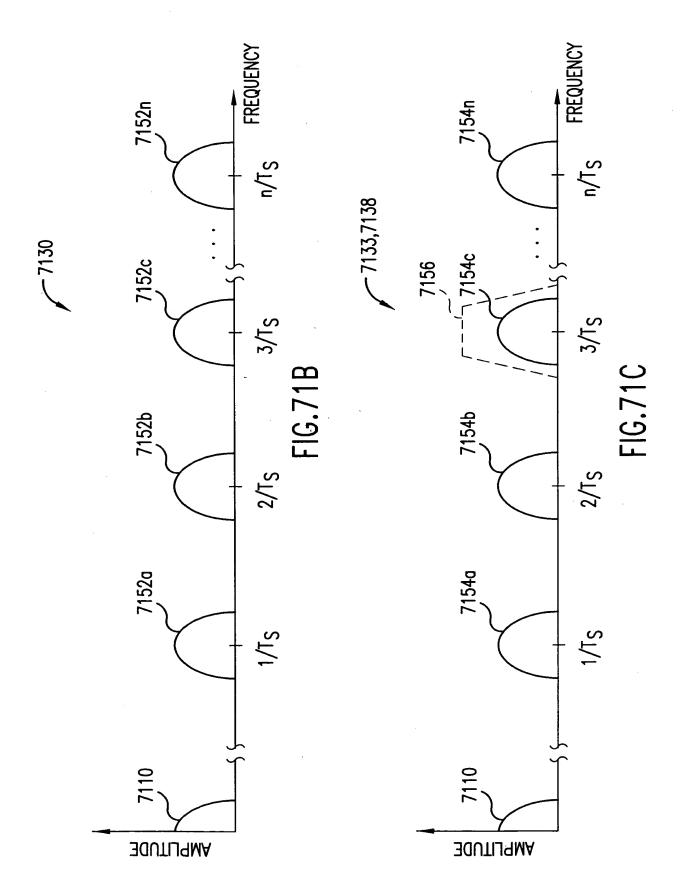
Including Multi-Phase Embodiments and Circuit



Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit OUTPUT SIGNAL 7140 7102 7136 7132 7130 7128 7124 7148 7150 7120 CNTL SIGNAL 7127 PULSE GENERATOR PULSE GENERATOR 7110 BASEBAND SIGNAL CNTL SIGNAL 7123-

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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
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Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

OUTPUT SIGNAL 7140 7126~ CNTL SIGNAL 7127 Vr 2613 PULSE GENERATOR PULSE GENERATOR BASEBAND SIGNAL CNTL SIGNAL 7123Reptacement Sheet Sheet 147 of 349

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Dkt No. 1744.0630003; Group Unit: 2634

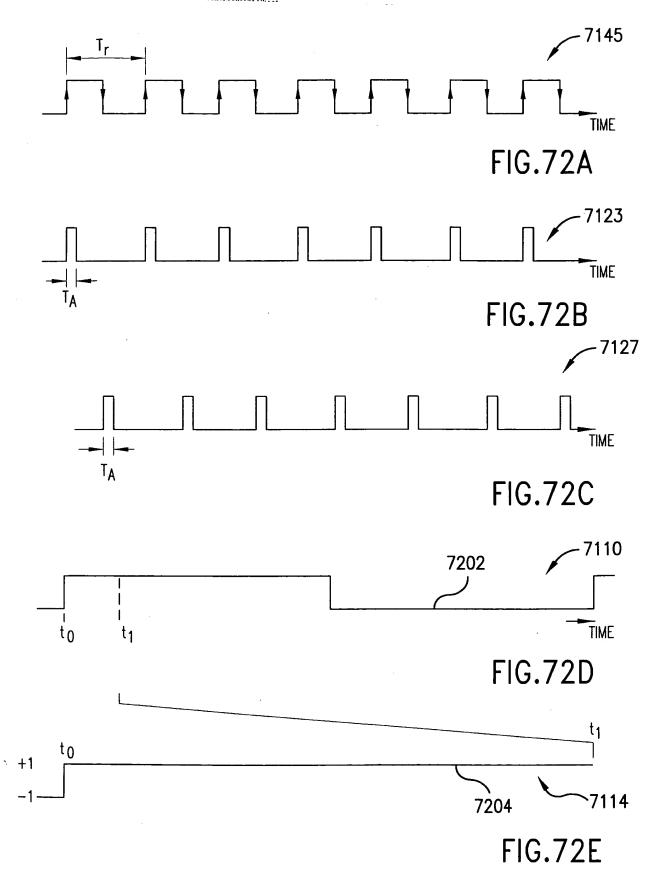
Inventors: Sorrells et al.

Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using

Universal Frequency Translation Technology

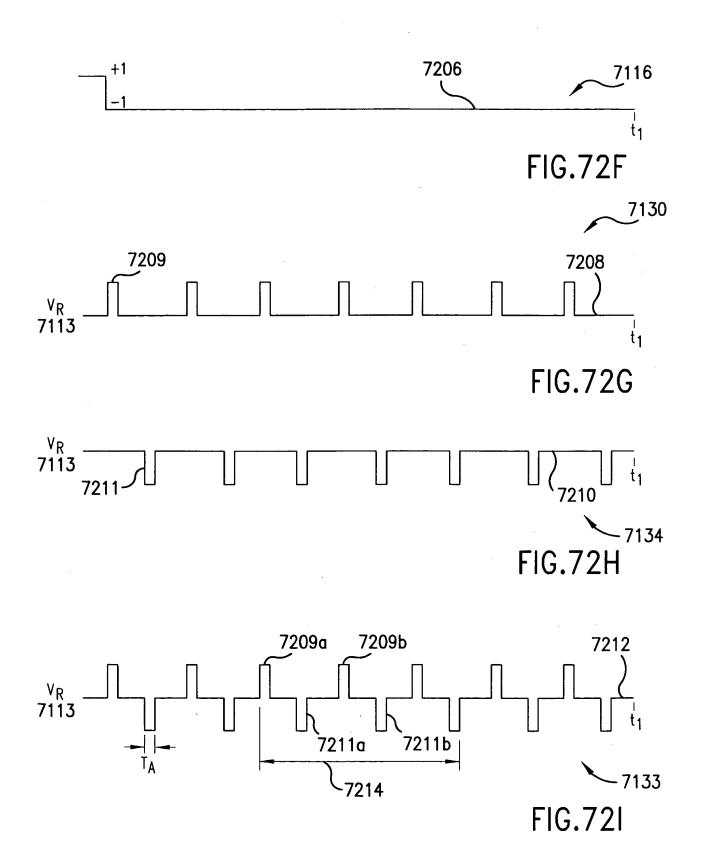
Including Multi-Phase Embodiments and Circuit



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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using

Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit

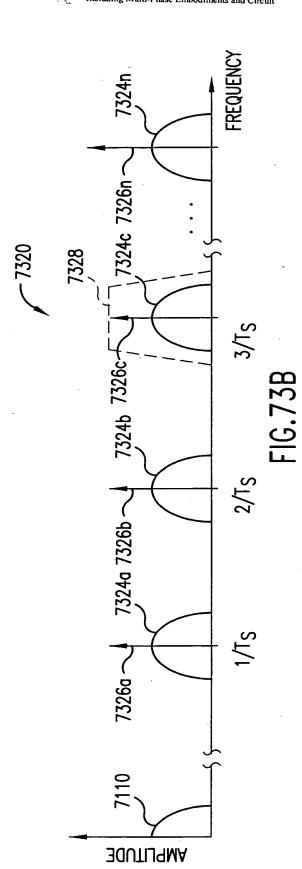


Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.0630003; Group Unit: 2634 Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit 1.87GHz 7218h 1.50GHz SQUARE WAVE FREQUENCY = 200Mhz 7218F 7218e\_ FREQUENCY F1G.72J 1.00GHz 7218d APERTURE = 500psFUNDAMENTAL CLOCK = 200Mhz (5<sup>th</sup> SUBHARMONIC) /218c U (SQUARE\_WAVE) 7218b 0.50GHz 218a> \_ 윉 500mV 250mV 8

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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit OUTPUT SIGNAL 7322 7302 7320 7132 FIG.73A 7124 7150 7118 7316~ CNTL SIGNAL 7127 CONTROL SIGNAL GENERATOR 7306 BASEBAND SIGNAL

CNTL SIGNAL 7123-



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Inventors: Sorrells et al.
Tel. No.: 202-371-2600

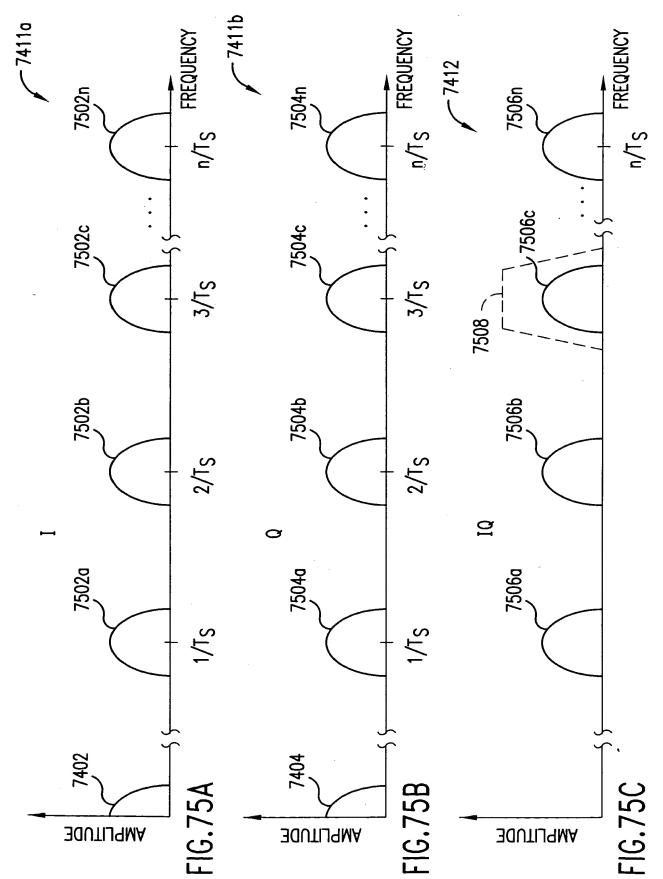
For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit

Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al. Tel. No.: 202-371-2600 For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit FIG.74 7408 7119a Vr 7406 7407 0 10

Replacement Sheet

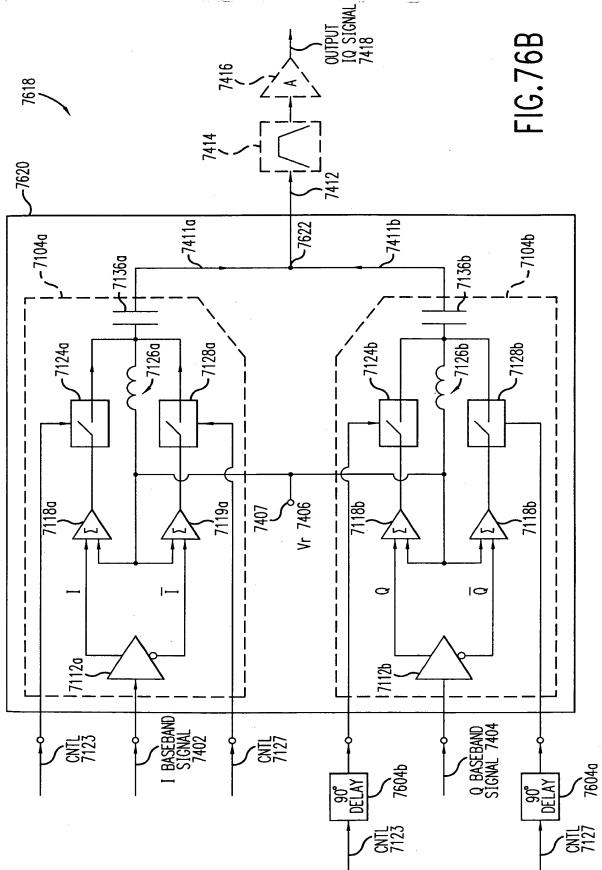
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For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit

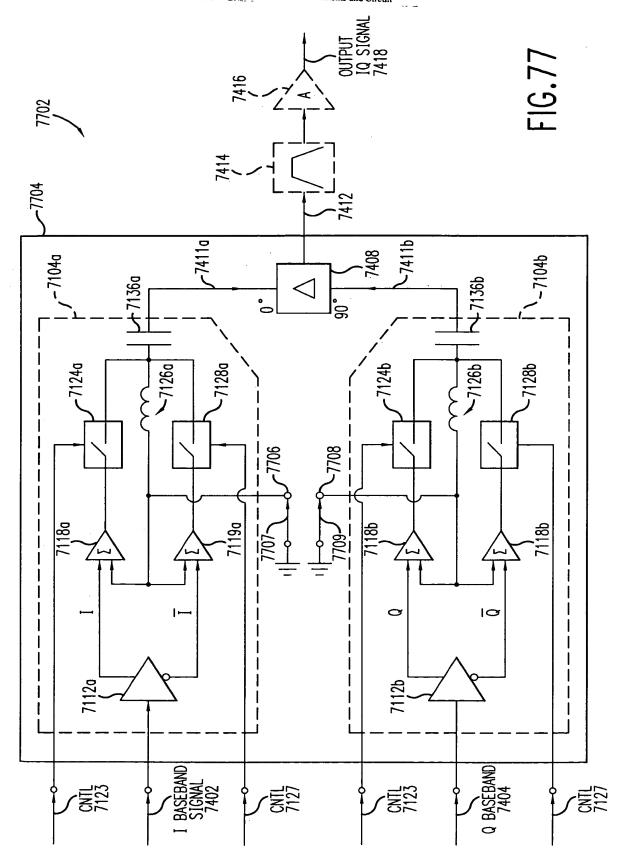


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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit FIG.76A 909/ 7136b Vr 7406 71<sup>1</sup>18b 18a O 10

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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

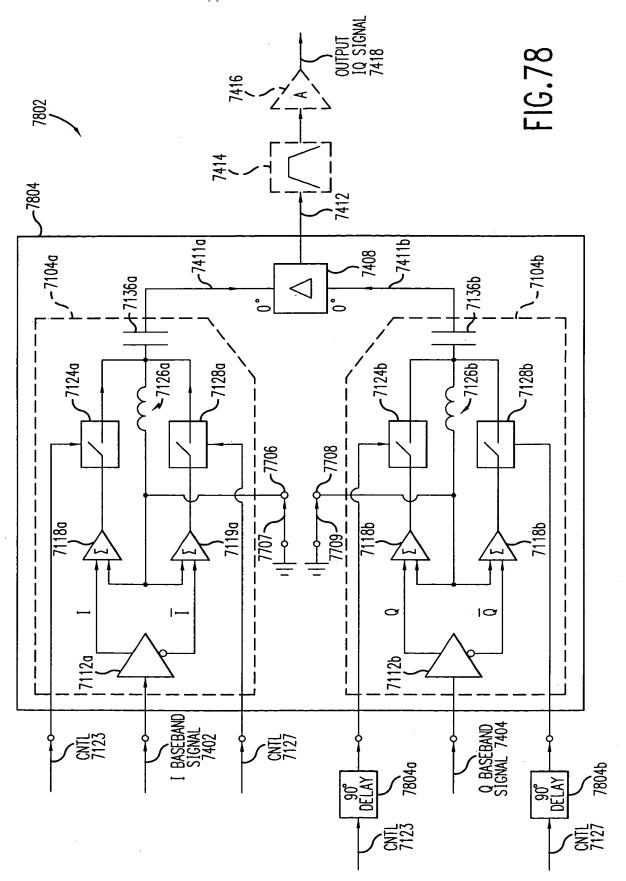


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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit



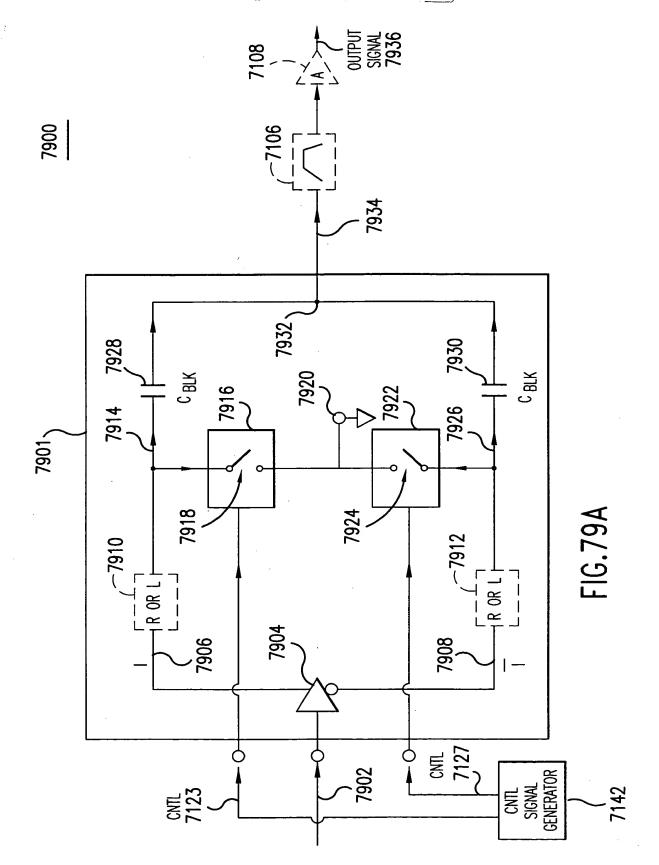
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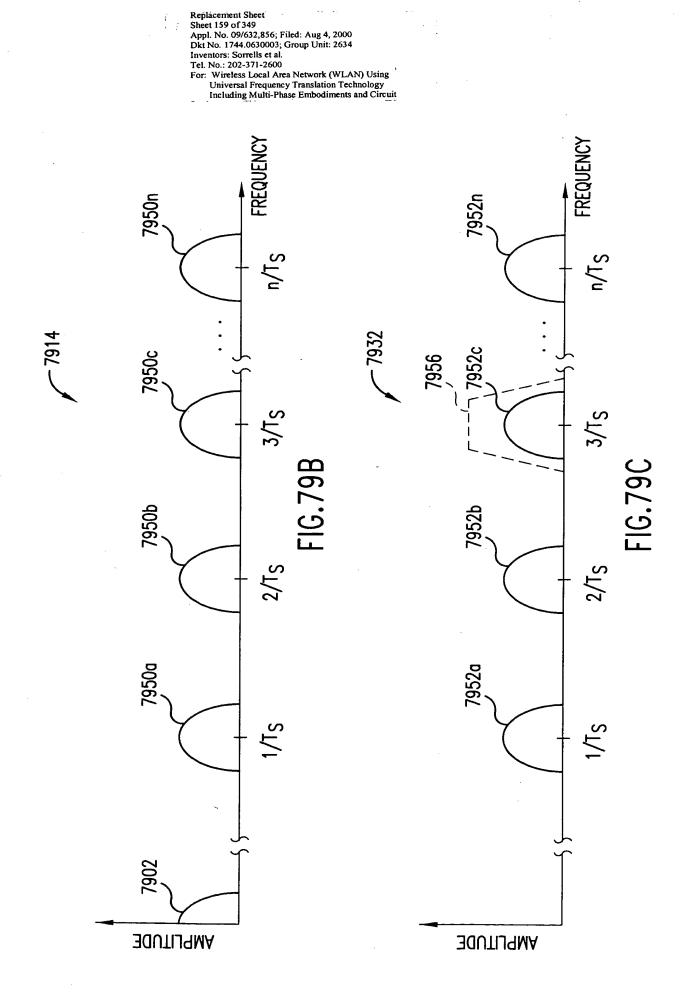
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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit



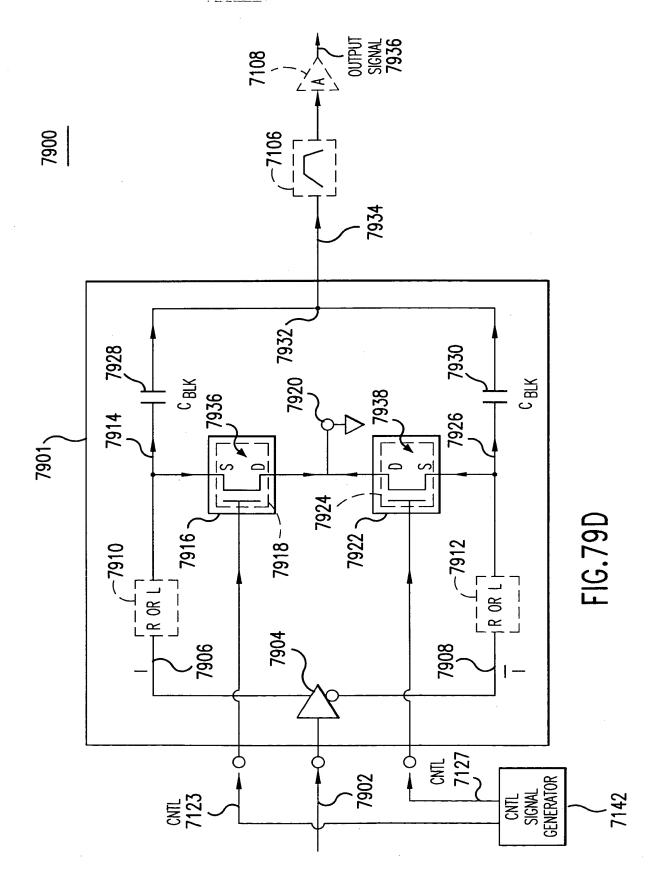
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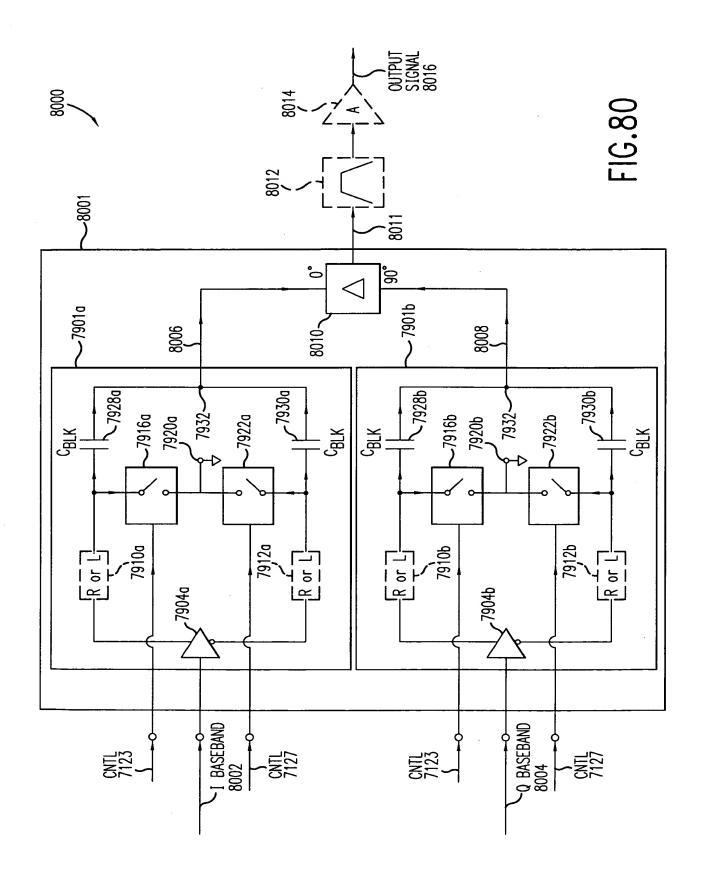
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Dkt No. 1744.0630003; Group Unit: 2634

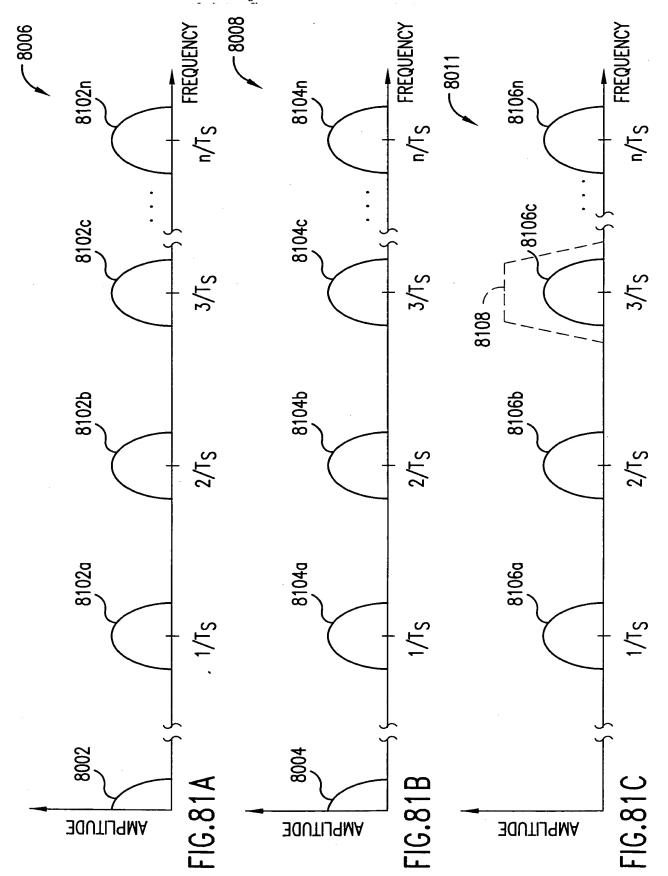
Inventors: Sorrells et al.

Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit

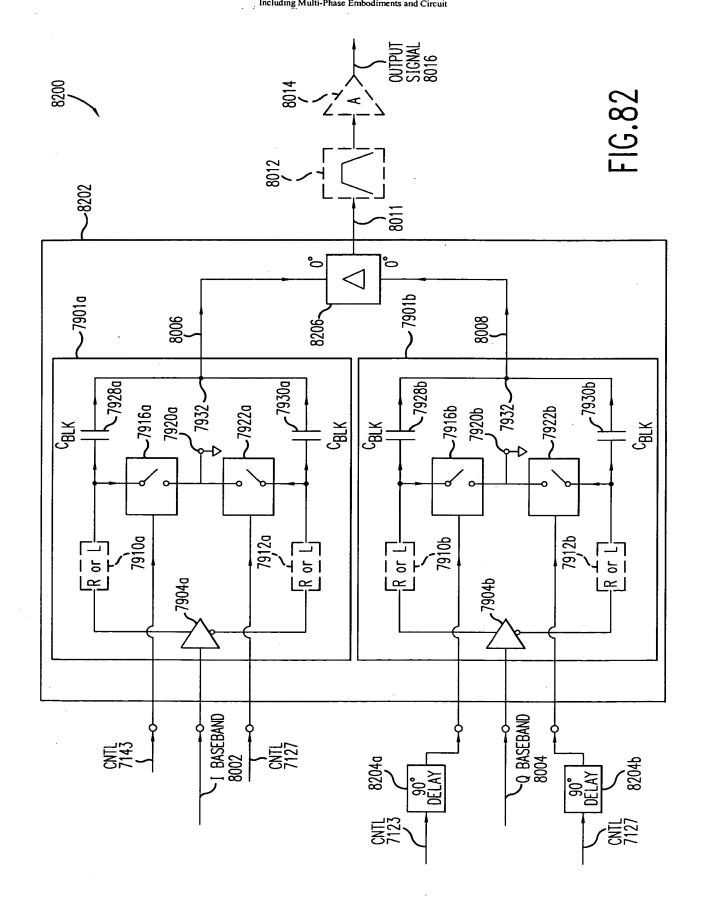


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Inventors: Sorrells et al.
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Including Multi-Phase Embodiments and Circuit



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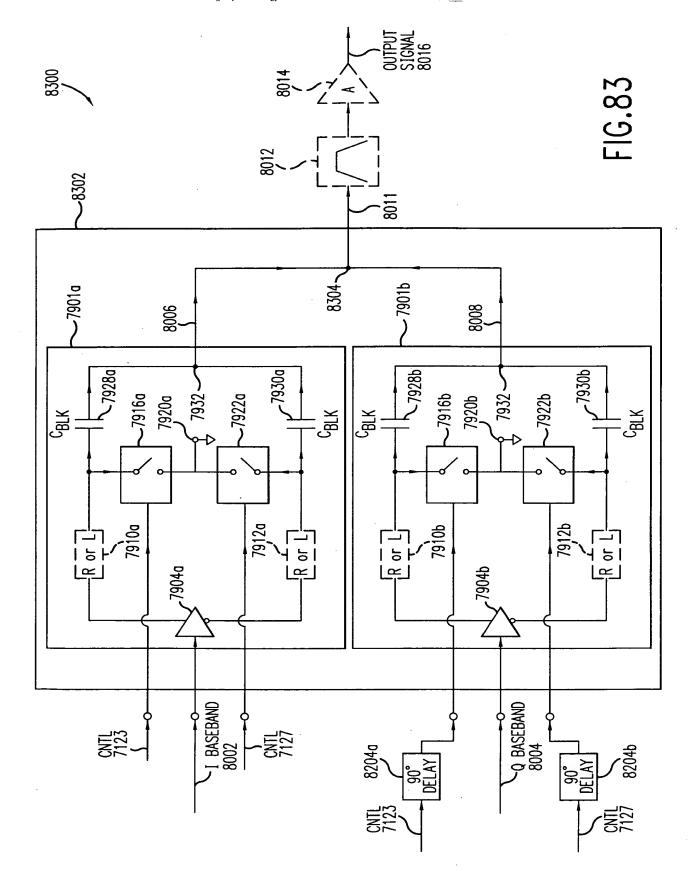
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit



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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit

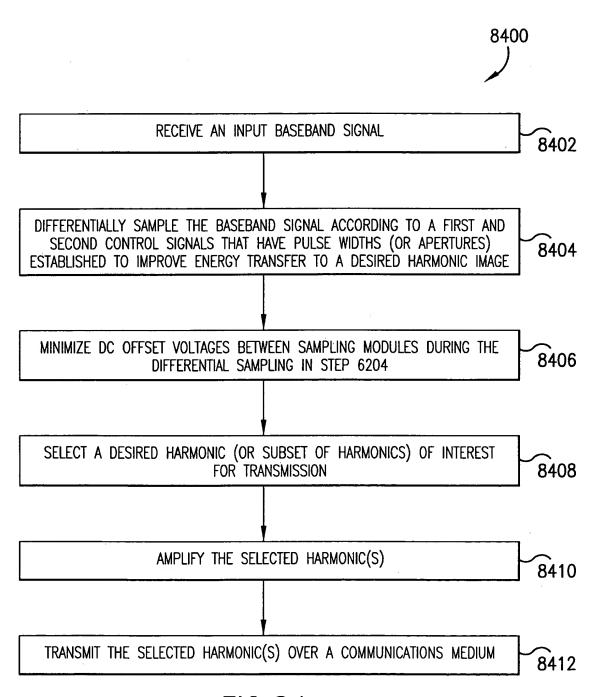


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Inventors: Sorrells et al. Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit



**FIG.84** 

For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit 8500 RECEIVE AN INPUT BASEBAND SIGNAL 8402 CONVERT THE (SINGLE-ENDED) INPUT BASEBAND SIGNAL INTO A DIFFERENTIAL SIGNAL HAVING FIRST AND SECOND SIGNAL COMPONENTS, WHERE THE 8502 SECOND COMPONENT IS AN INVERTED VERSION OF THE FIRST COMPONENT ADD A DC REFERENCE VOLTAGE TO BOTH OF THE DIFFERENTIAL SIGNAL COMPONENTS, RESULTING IN A FIRST COMBINED SIGNAL AND SECOND 8504 COMBINED SIGNAL GENERATE A FIRST CONTROL SIGNAL AND A SECOND CONTROL SIGNAL THAT HAVE A COMMON FREQUENCY BUT ARE PHASE-SHIFTED WITH RESPECT TO EACH OTHER, AND THAT HAVE PULSE WIDTHS (OR APERTURES) OF TA THAT ARE ESTABLISHED TO IMPROVE ENERGY TRANSFER TO A DESIRED HARMONIC OF THE CONTROL 8506 SIGNAL FREQUENCY 8404, 8406 SAMPLE THE FIRST COMBINED SIGNAL ACCORDING TO THE FIRST CONTROL SIGNAL TO GENERATE A FIRST HARMONICALLY RICH SIGNAL 8508 SAMPLE THE SECOND COMBINED SIGNAL ACCORDING TO THE SECOND CONTROL SIGNAL TO GENERATE A SECOND HARMONICALLY RICH SIGNAL 8510 COMBINE THE FIRST HARMONICALLY RICH SIGNAL AND THE SECOND HARMONICALLY RICH SIGNAL TO GENERATE A THIRD HARMONICALLY RICH SIGNAL THAT HAS MINIMAL CARRIER INSERTION IN THE HARMONIC IMAGES 8512 SELECT A DESIRED HARMONIC (OR SUBSET OF HARMONICS) 8408 FOR TRANSMISSION

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Inventors: Sorrells et al. Tel. No.: 202-371-2600

Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.0630003; Group Unit: 2634

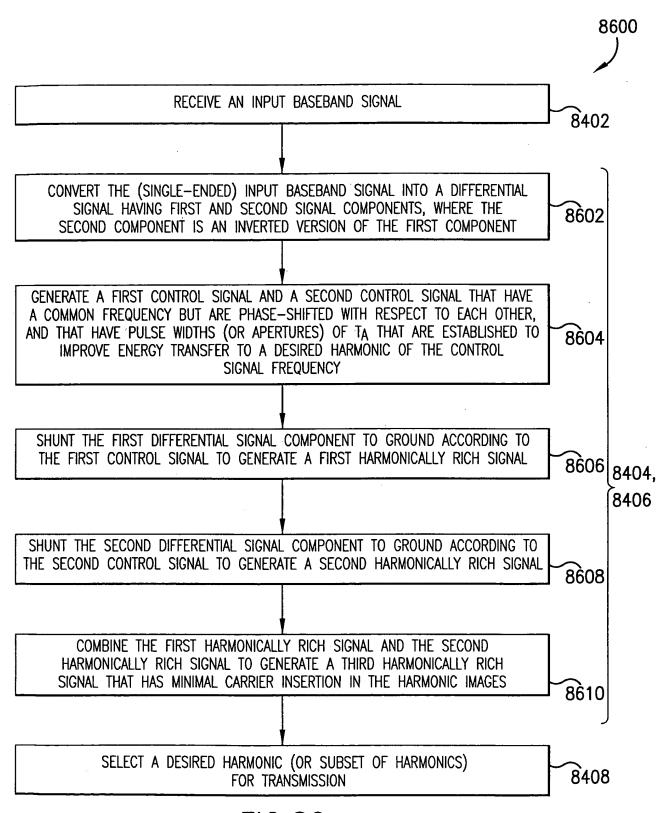
**FIG.85** 

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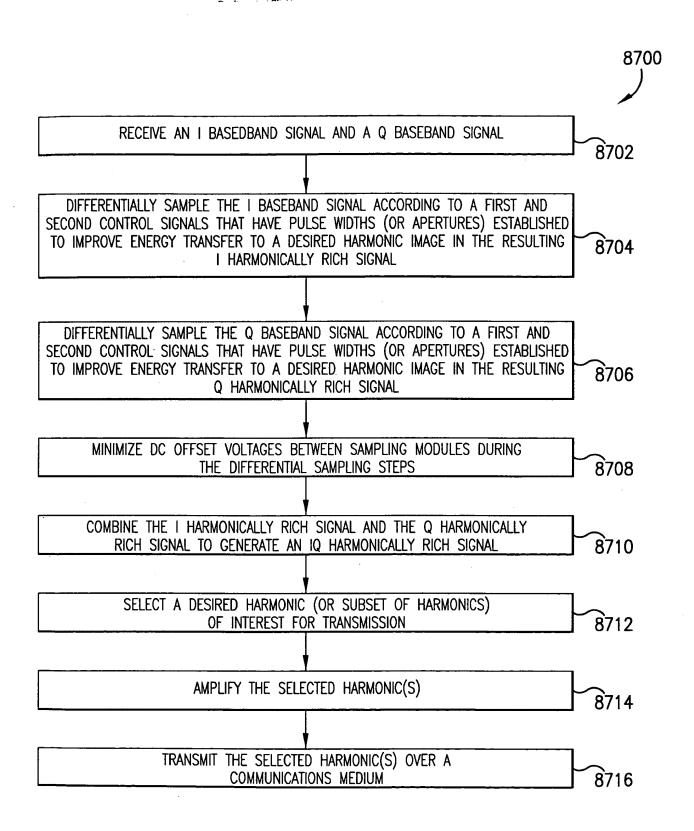
Inventors: Sorrells et al. Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit



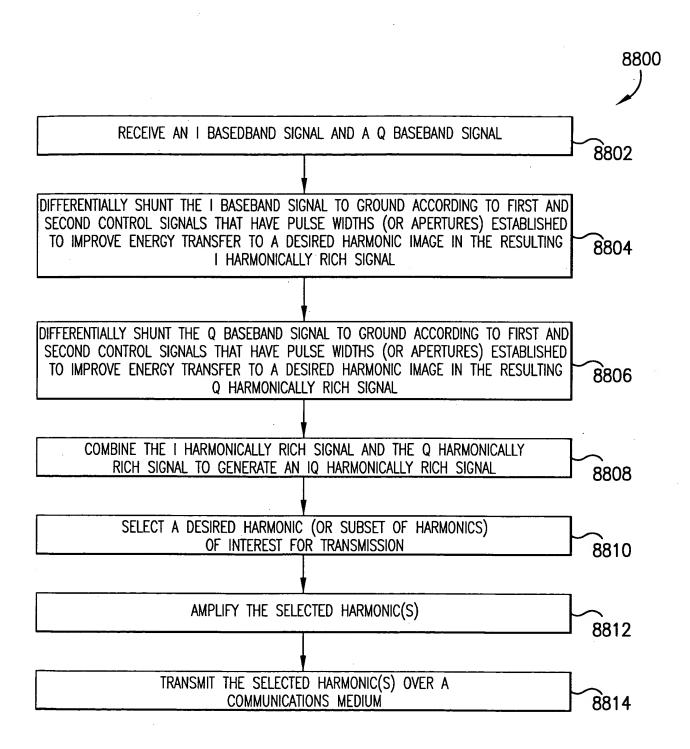
**FIG.86** 

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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
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Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit



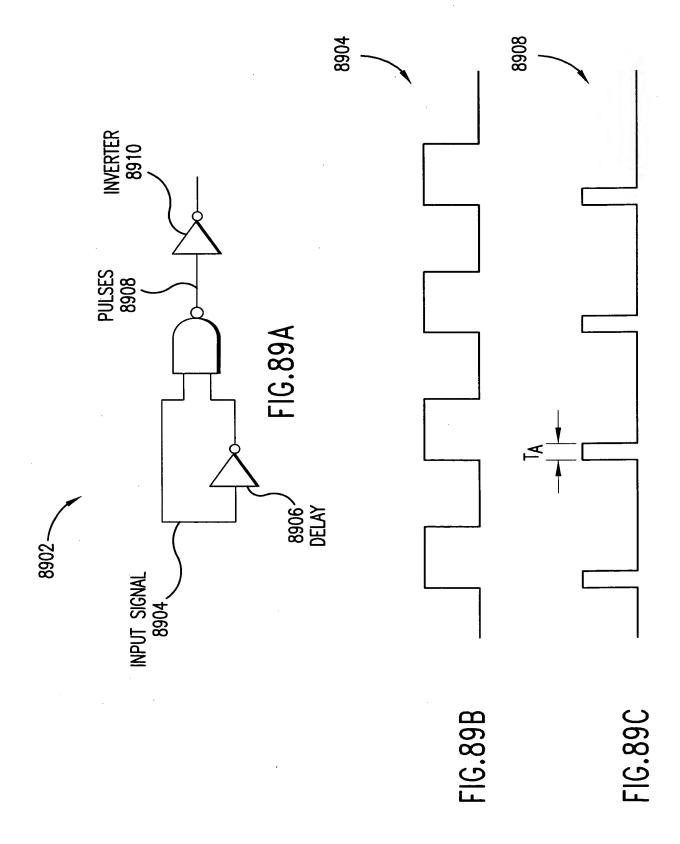
**FIG.87** 

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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit



**FIG.88** 

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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

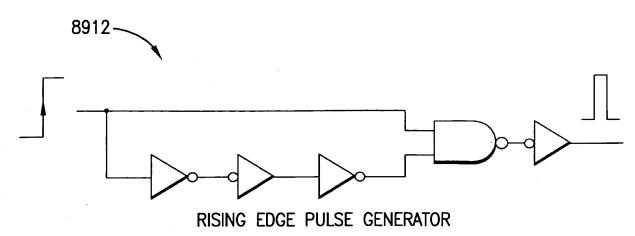


FIG.89D

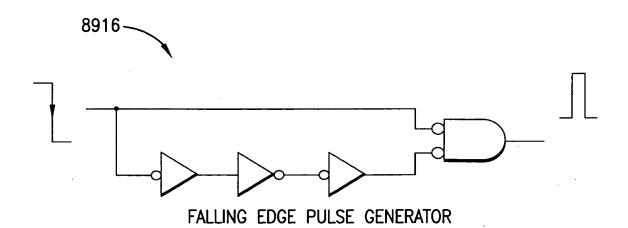


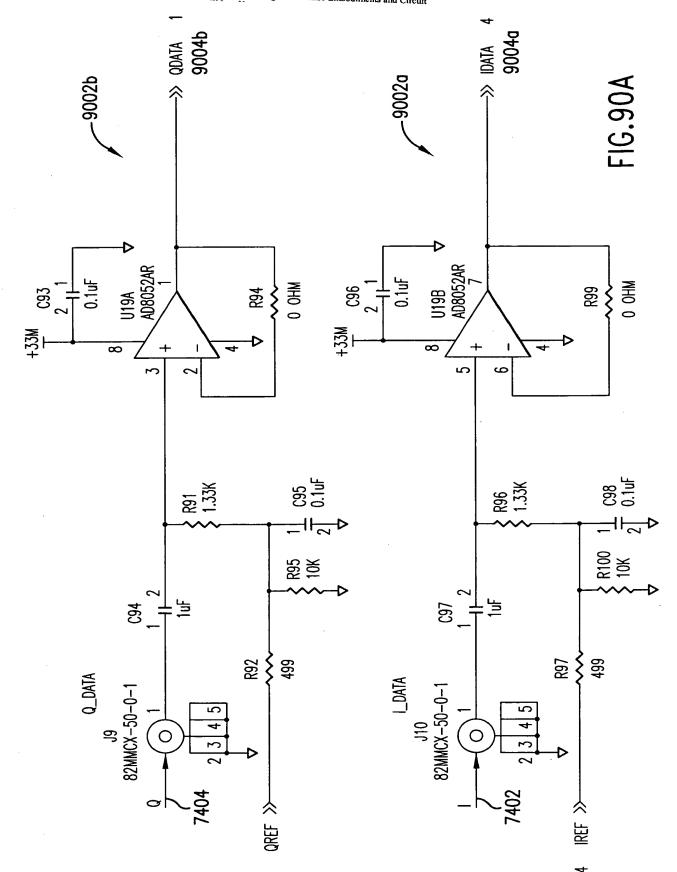
FIG.89E

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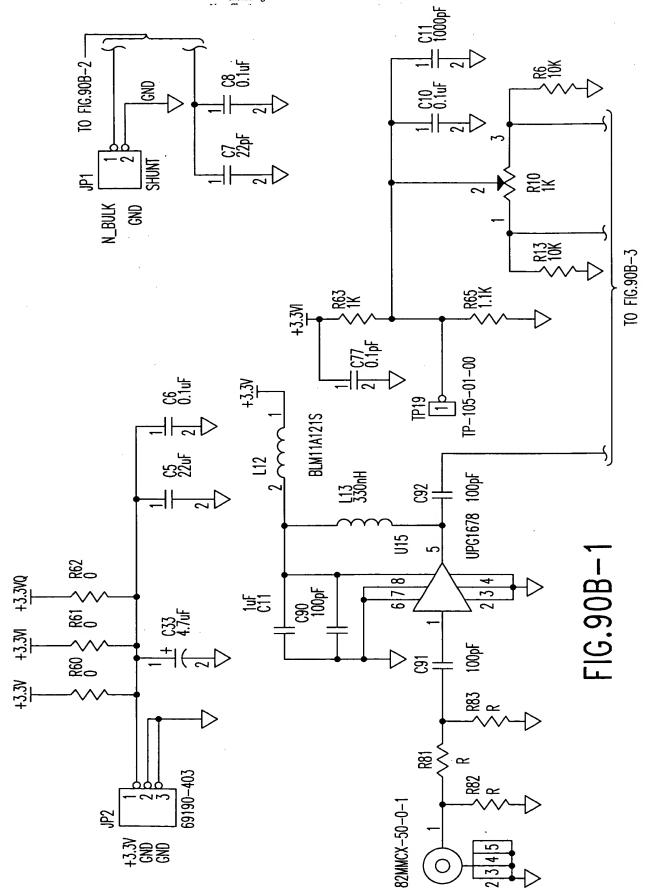
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Appl. No. 09/632,856; Filed: Aug 4, 2000
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FIG.90B-2	FIG.90B-4
FIG.90B-1	FIG.90B-3

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Universal Frequency Translation Technology
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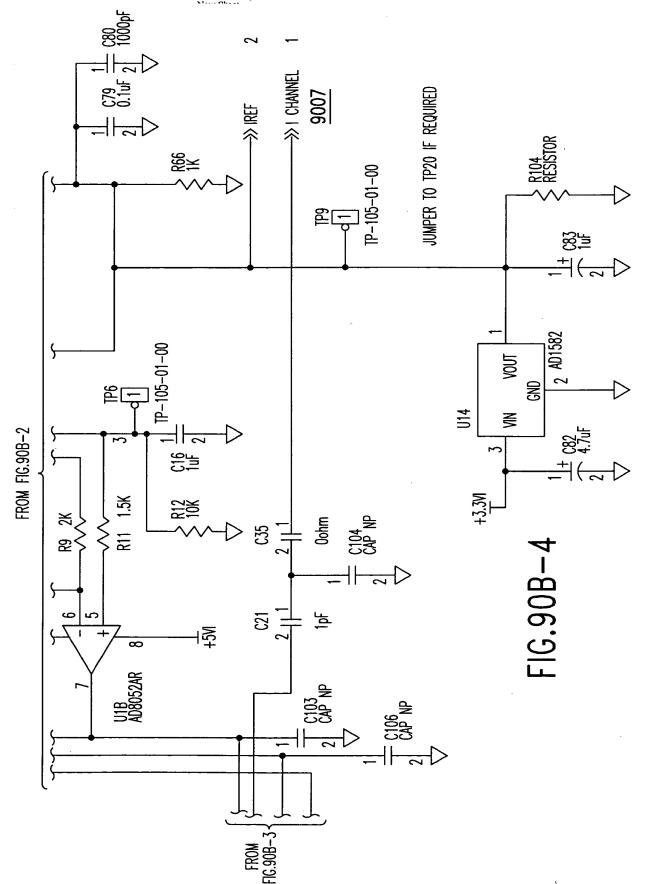
New Sheet
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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit FIG.90B-2 |\_DATA 9004a £ 1¥ 11 C78 O.1uf TO FIG.90B-4 88 -1.33 -2. \$ ≤ ₹ 0.1uF U1A AD8052AR R89 4.02K 77 5.04K TP2 TP-105-01-00

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For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit TO FIG.908-4 020\_V11 FROM FIG.90B-1 0 **784** TP-105-01-00 CAP NP 0001 器 U17 A0T21T C21 1000pF R71 Resistor ESC414 8 읮 IN PUT 016 읮

FIG.90B-3

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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using

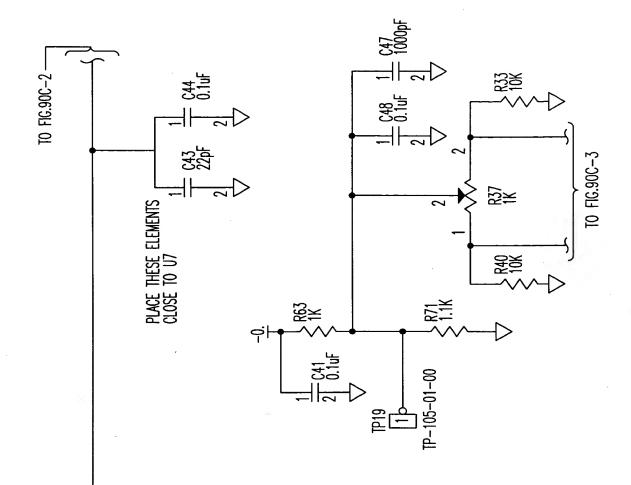
for: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit



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FIG.90C-2	FIG.90C-4
FIG.90C-1	FIG.90C-3

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N\_BULK

FIG.90C-1

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Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit FIG.90C-2 85 ¥ TO FIG.90C-4 R103 R101 ⋛≍  $\infty$ 0.1uF U1A AD8052AR R102 4.02K 

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Inventors: Sorrells et al.
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Including Multi-Phase Embodiments and Circuit

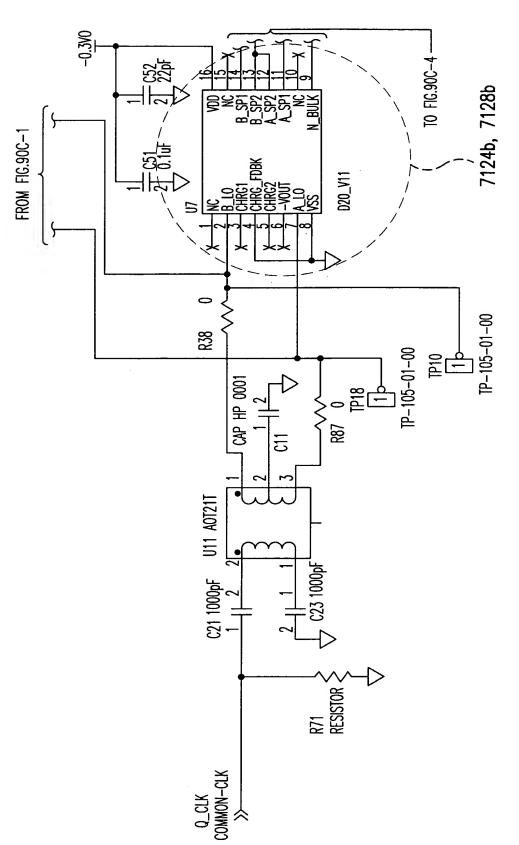


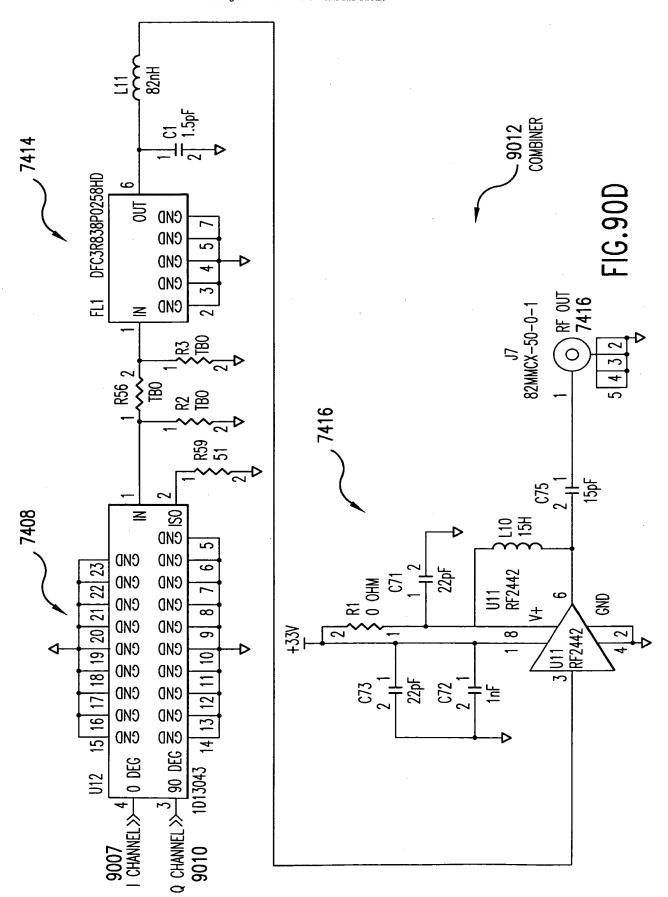
FIG.90C-3

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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit 1 685 1 687 2 0.1ur 2 1000pr → 0 CHANNEL 9010 JUMPER TO TP20 IF REQUIRED R72 1X IP-105-01-00 AD1582 VOUT **TP16** 8 ₹ FROM FIG.90C-2 87∓ 談美 <del>,</del> X R38 R36 FIG.90C-4 Q CHANNEL 9008 횬 9 C21

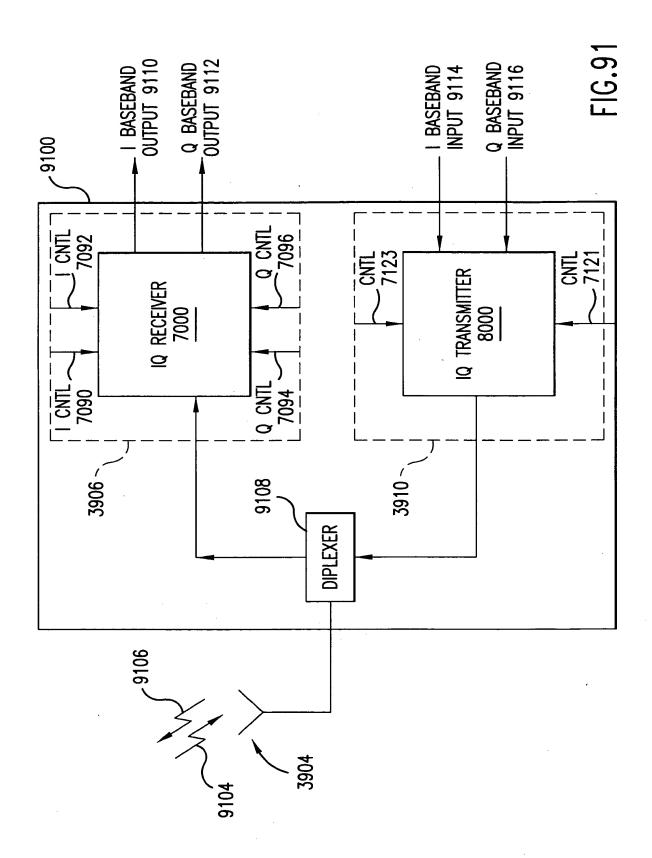
New Sheet Sheet 182 of 349 Replacement Sheet Sheet 183 of 349 Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.0630003; Group Unit: 2634 Inventors: Sorrells et al. Tel. No.: 202-371-2600

Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit

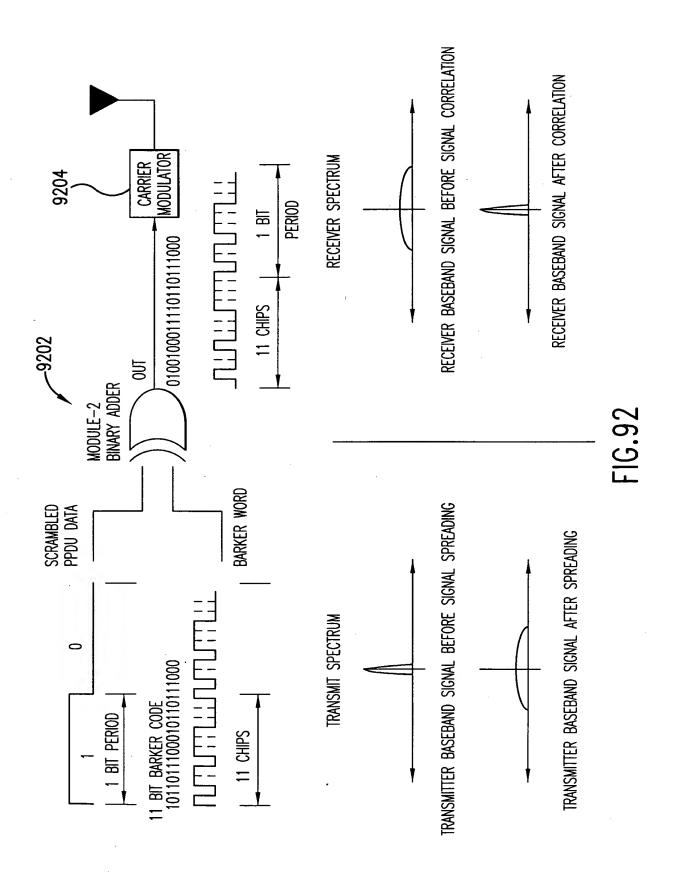


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Inventors: Sorrells et al.
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Including Multi-Phase Embodiments and Circuit

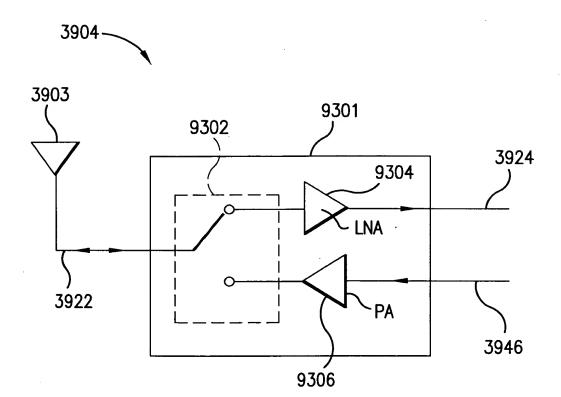


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Dkt No. 1744.0630005; Group Ohi: 2654
Inventors: Sorrells et al.
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**FIG.93** 

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For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit 9418 BUS INTERFACE UNIT 9416 9400 MAC FIG.94 BASEBAND PROCESSOR 9412 TRANSMITTER 8000 RECEIVER 7000

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Inventors: Sorrells et al.
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For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

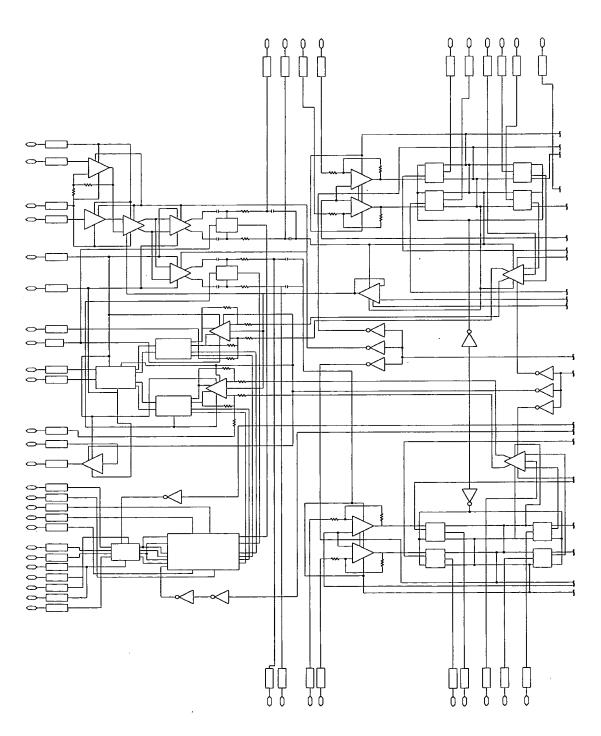


FIG.95B

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Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

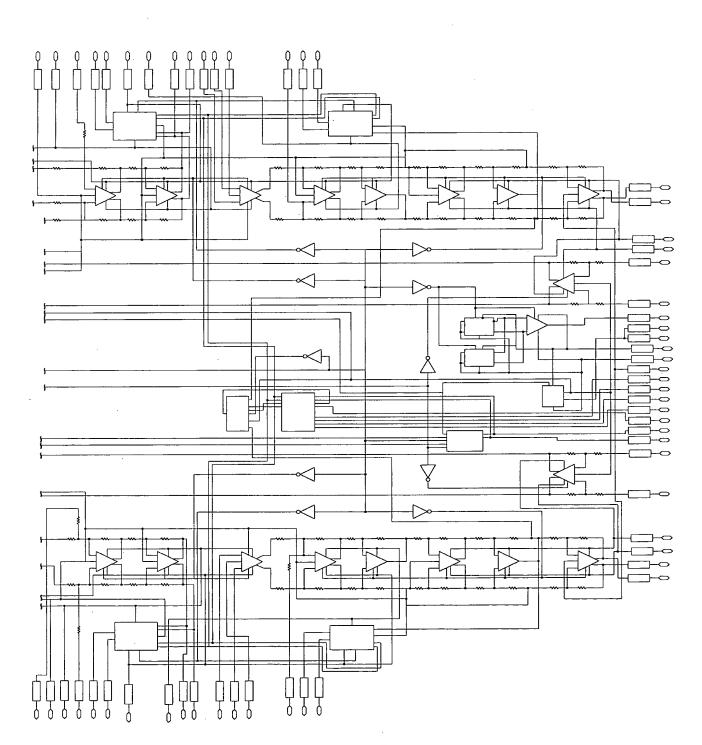
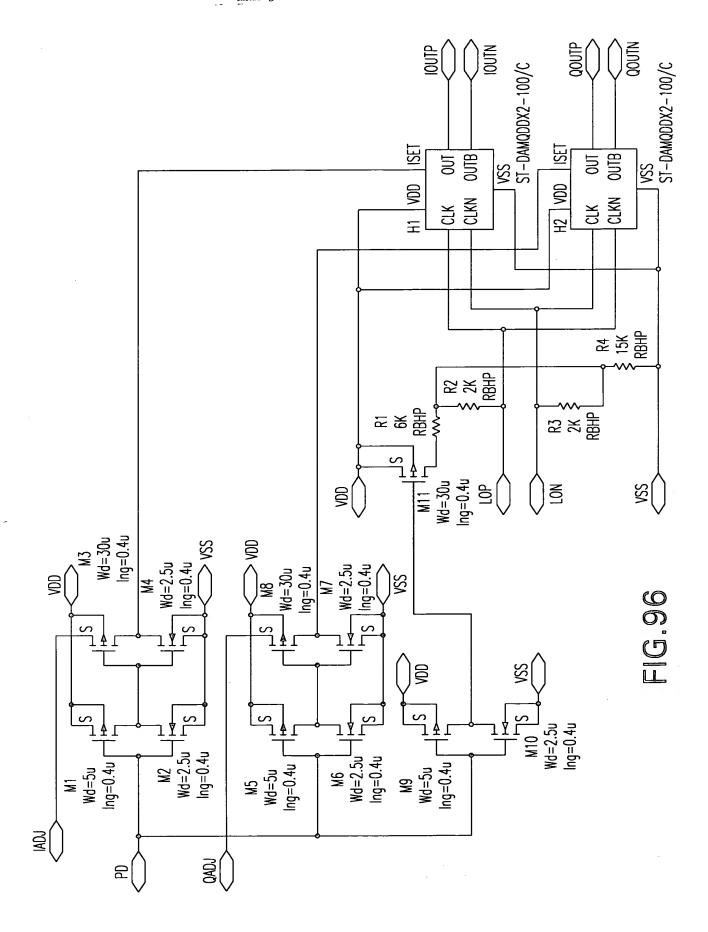


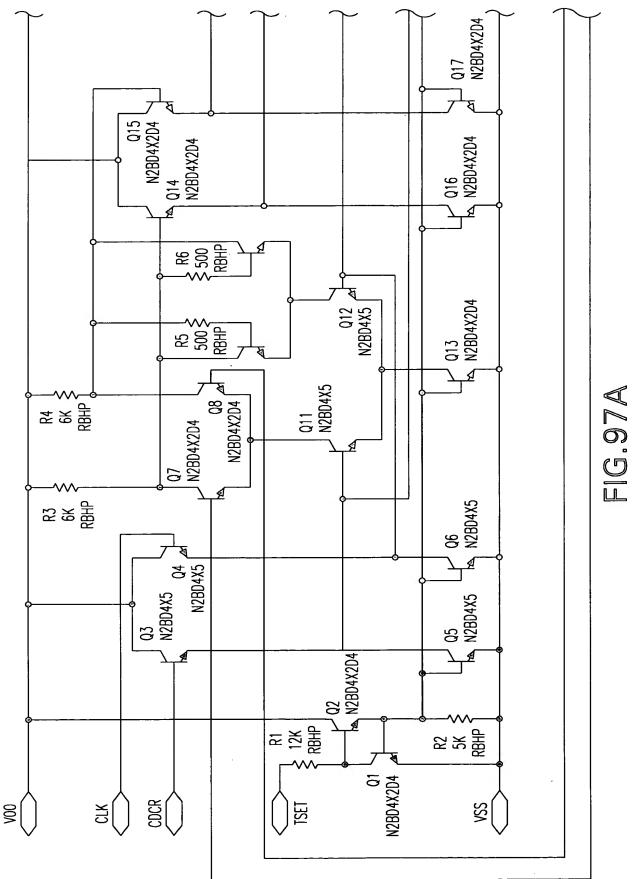
FIG.95C

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Inventors: Sorrells et al.
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For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit

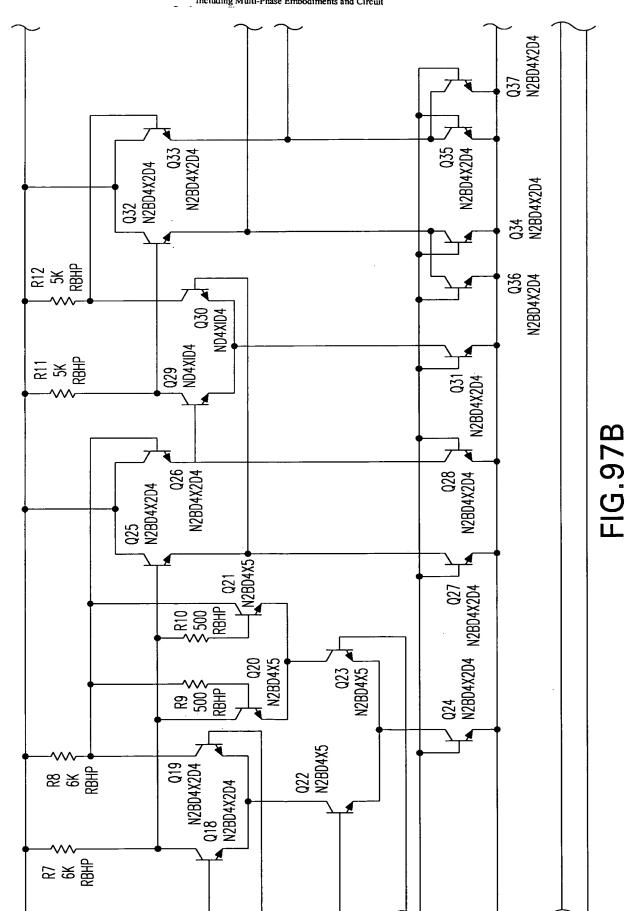


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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
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Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

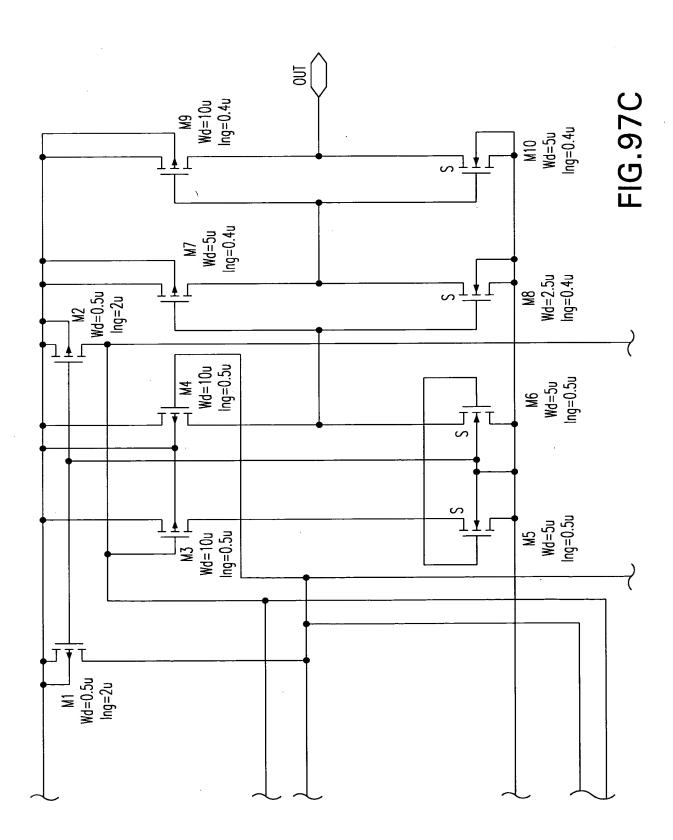


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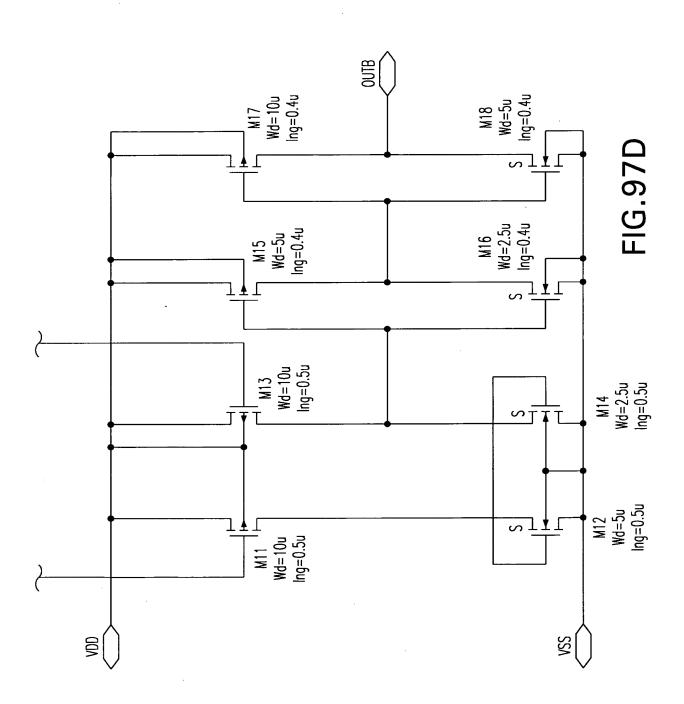
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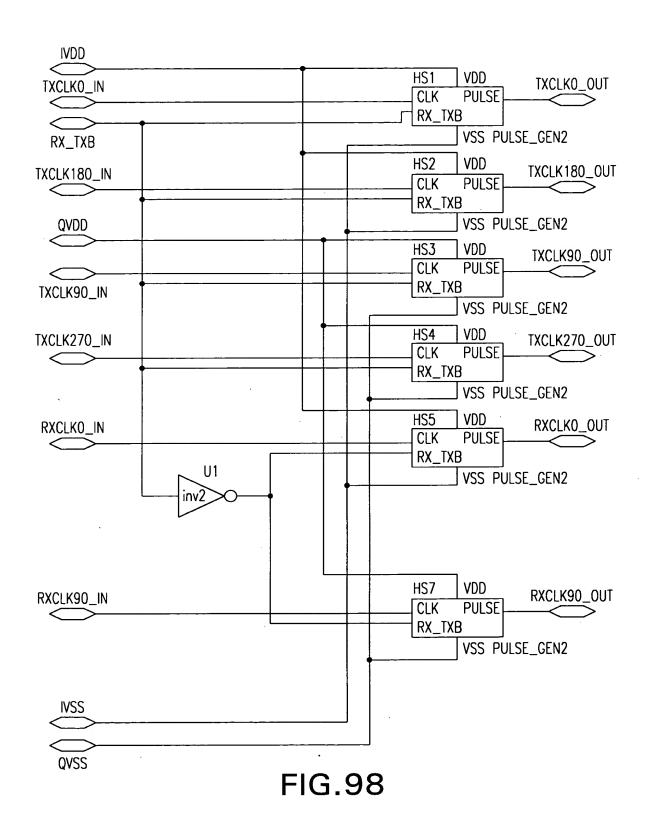
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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
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Including Multi-Phase Embodiments and Circuit



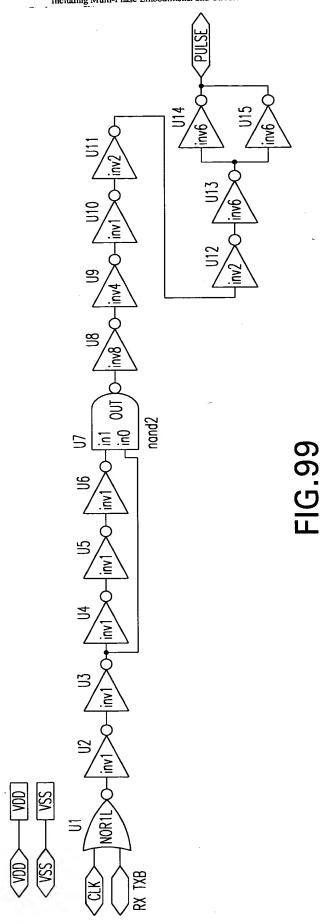
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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

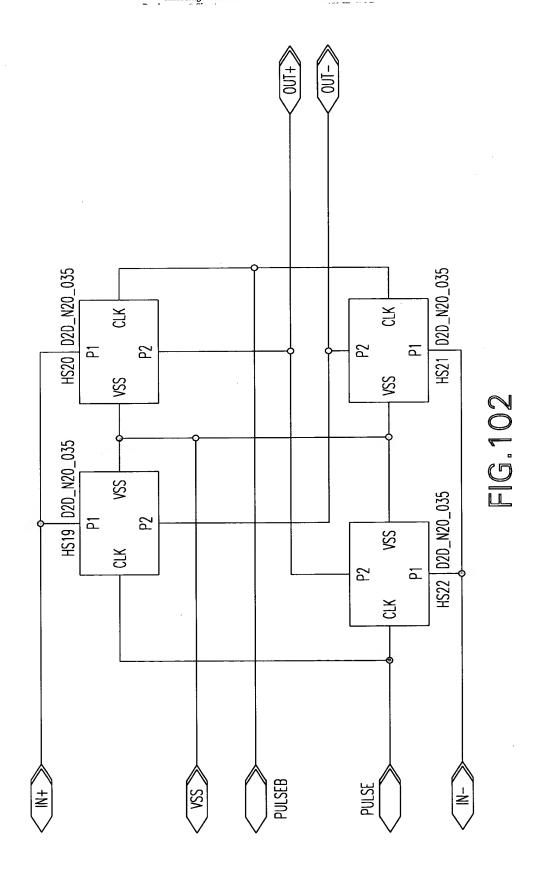


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Inventors: Sorrells et al.
Tel. No.: 202-371-2600 For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit Q2 N5E6B2CD4X20 REXP REXP R5 12 REXP 6.0mA 6.0mA N5E6B2CD4X20 2 조 옷뙱 쫎 눚籍 조 옷 0.901V 1.956V 25 gG Ing=0.4u Wd=40u M3 Ing=0.4u Wd=5u M4 FIG. 100 Ing=0.4u Wd=5u M1

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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit 6.1mA 6.1mA 25 옷 쫎눆쭕 쮼 꾟 2.303V 0.965V C1 PCd 2PCd Ing=0.4u Wd=5u M4 Ing=0.3u Wd=40u M3 FIG. 103 Ing=0.4u Wd=5u M1

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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

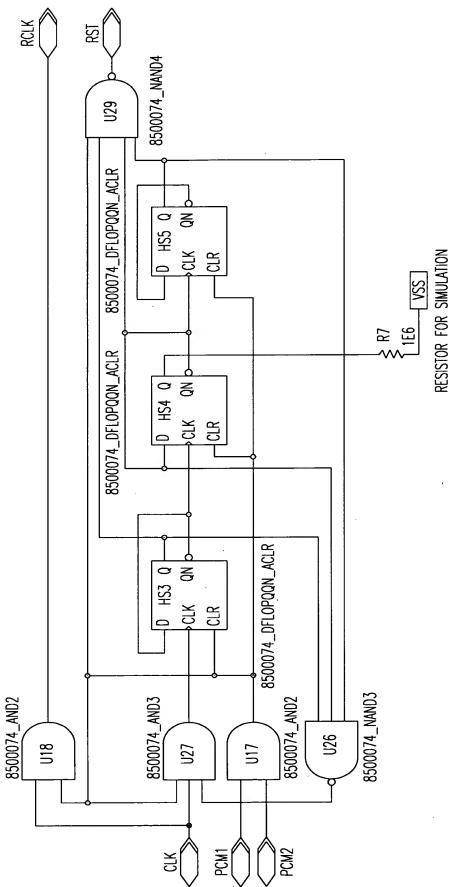
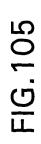
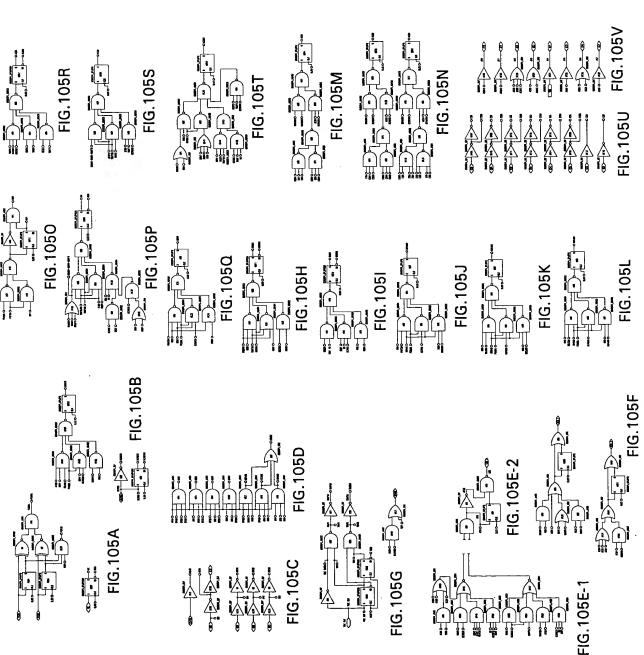


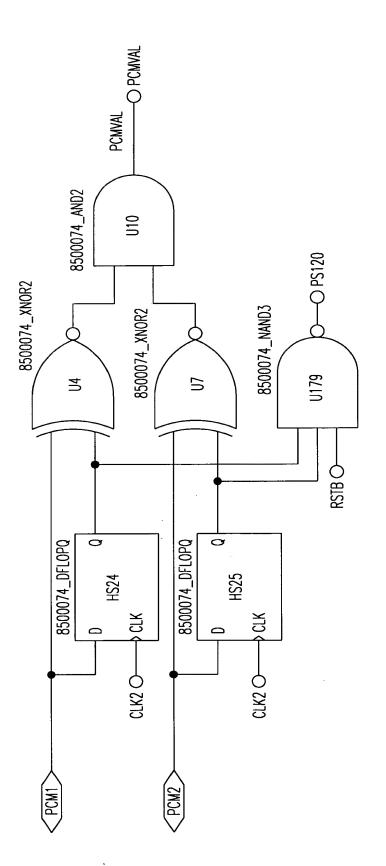
FIG. 104

For: Wireless Local Area Network (WLAN) Using
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Inventors: Sorrells et al.
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Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit



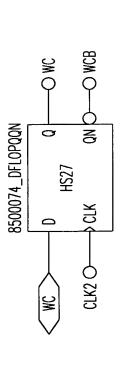
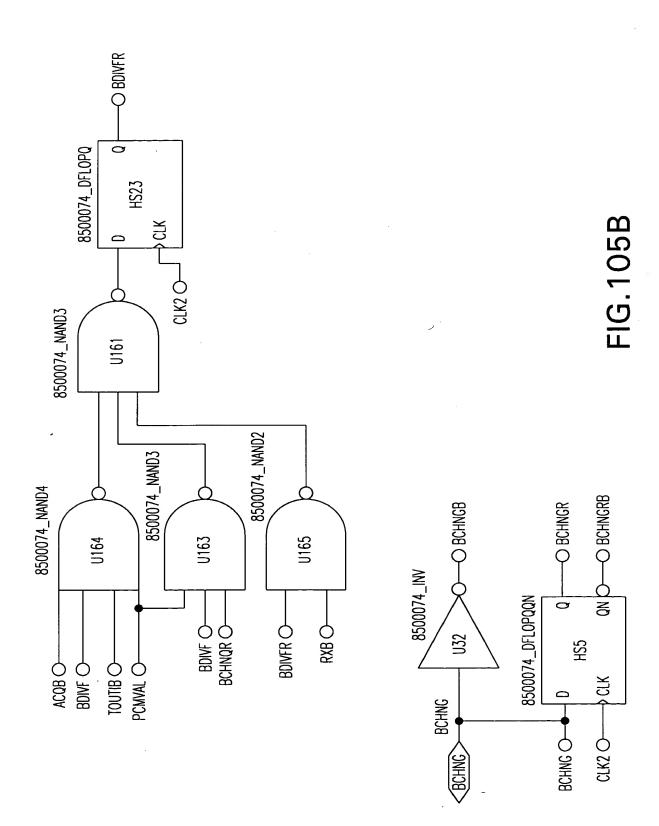
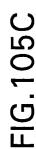


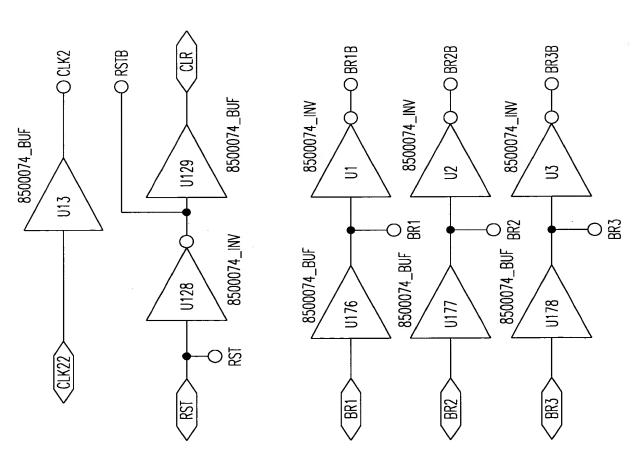
FIG. 105A

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Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

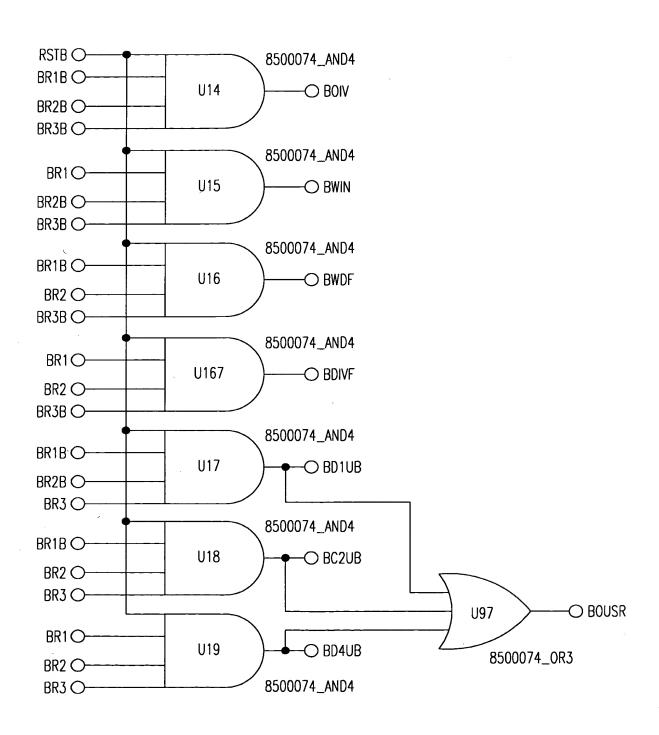


FIG. 105D

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Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit

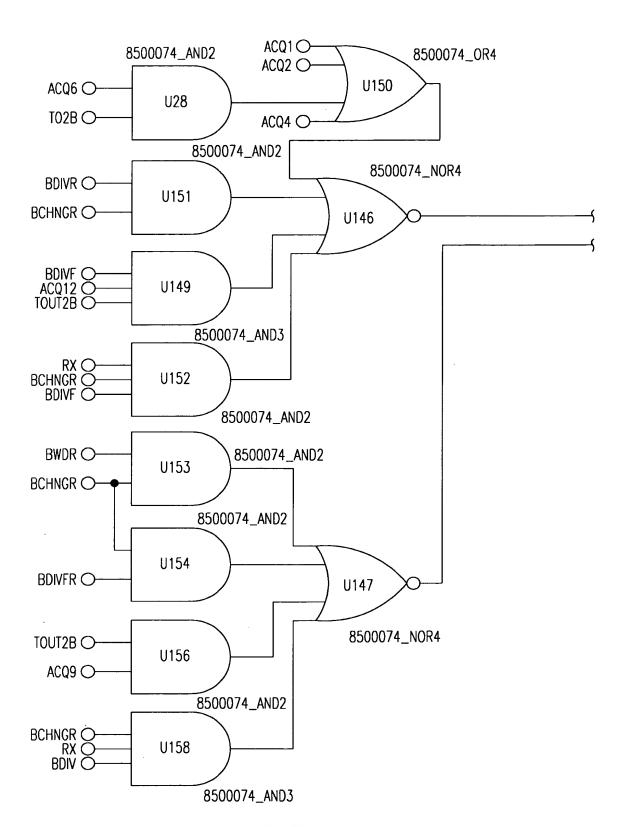


FIG.105E-1

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Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

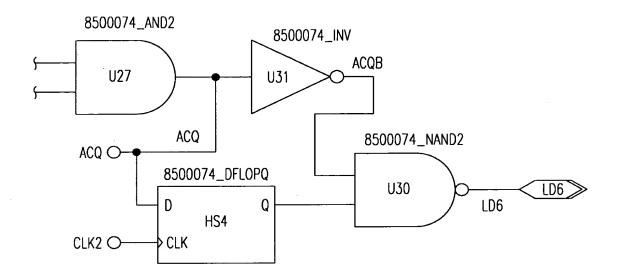
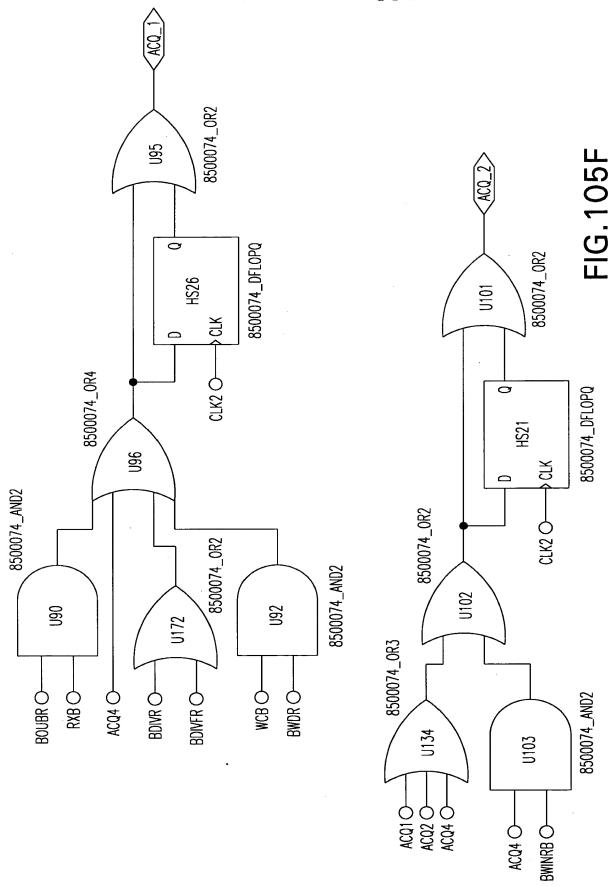


FIG. 105E-2

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Inventors: Sorrells et al.
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For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit T0UT1B T0UT2B 8500074\_INV 8500074\_INV **U20 U21 T0UT2 TOUT2 TOUT** T00T 8500074\_NAND2 8500074\_NAND2 **U22 U23** 102 O 8500074\_DFLOPQQN 3 TIME OUTBO-50 HS22 끗 8500074\_INV 8500074\_DFLOPQQN 8 HS24 **U24** TIME OUT 뜭 CLK2 O-T

TIME OUT

FIG.105G

8500074\_0R2

**U171** 

**U106** 

BWDR O

BCHNGR O

8500074\_AND2

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Inventors: Sorrells et al.
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For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

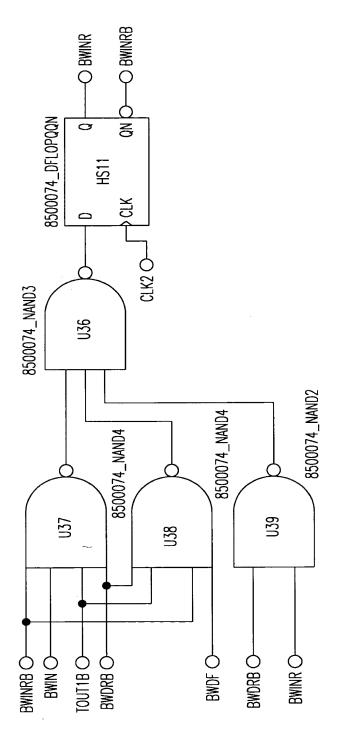


FIG. 105H

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Including Multi-Phase Embodiments and Circuit

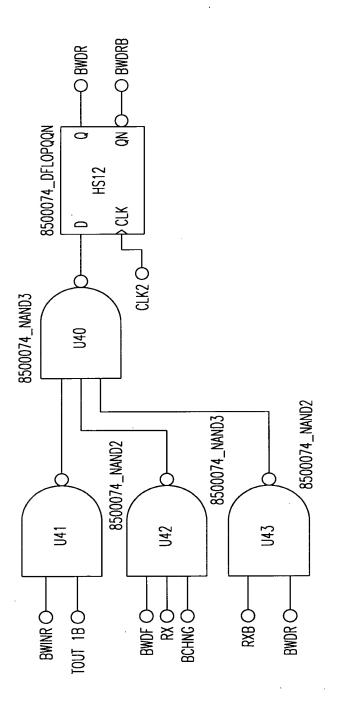


FIG. 1051

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Sheet 214 of 349
Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt:No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

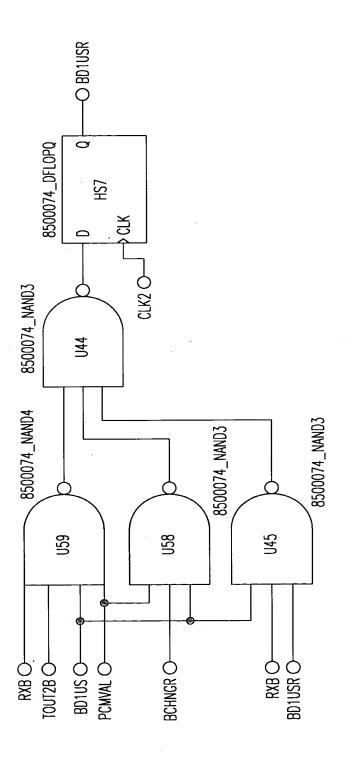


FIG. 105J

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Sheet 215 of 349
Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

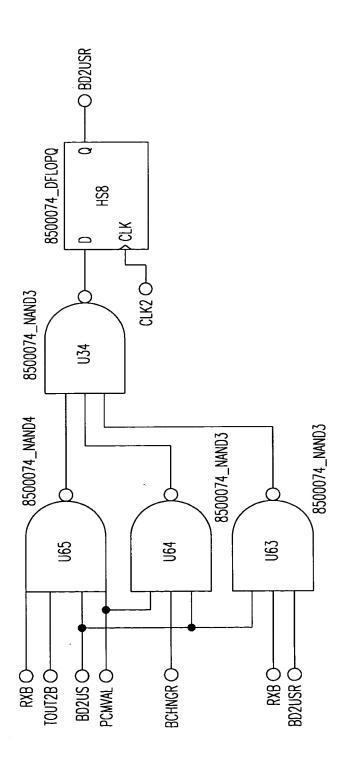


FIG: 105K

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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

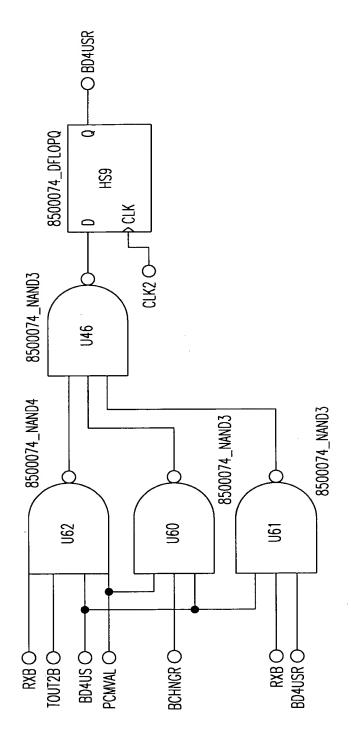


FIG.105L

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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

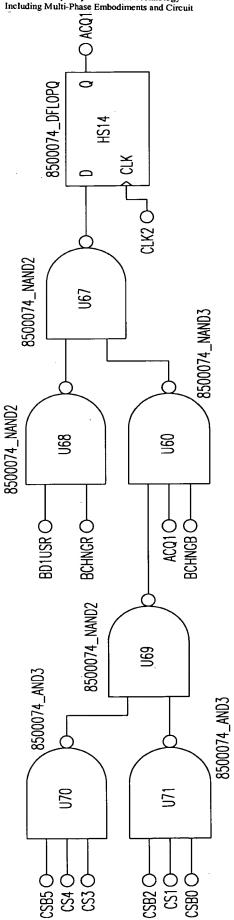


FIG.105M

Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit 0 HO ACQ2 8500074\_DFL0PQ 8500074\_DFL0PQ HS16 HS15 띥 SK 8500074\_NAND2 8500074\_NAND2 **U72** 117 8500074\_NAND3 8500074\_NAND3 FIG. 105N 8500074\_NAND2 8500074\_NAND2 **U133 U73** 078 8 ACO4 O-BCHNGB O-ACQ2 O-BCHNGB O-BD4USR O-BD2USR 🔿 BCHNGR O BCHNGR O 8500074\_NAND2 8500074\_NAND2 079 **U74** 8500074\_AND3 8500074\_AND4 8500074\_AND3 8500074\_AND4 **U132 U131** 9/0 **U75** CSB1O-\$35 \$4 \$4 CS2 Q CSB3 O CSB2 O-CSB7 Q CS6 O

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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

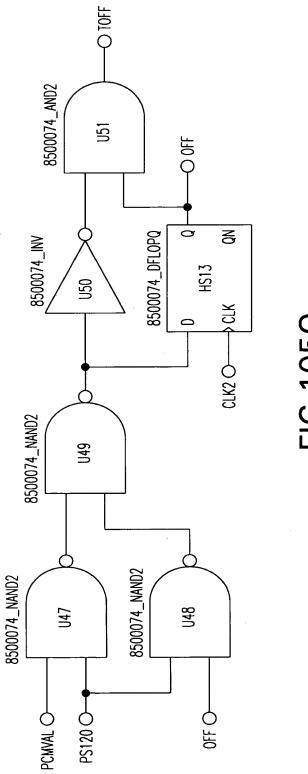
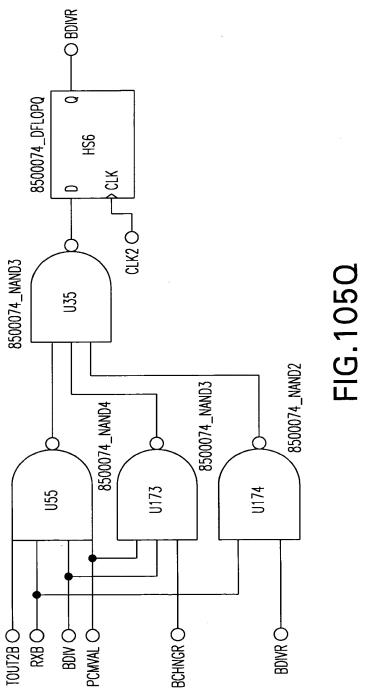


FIG.1050

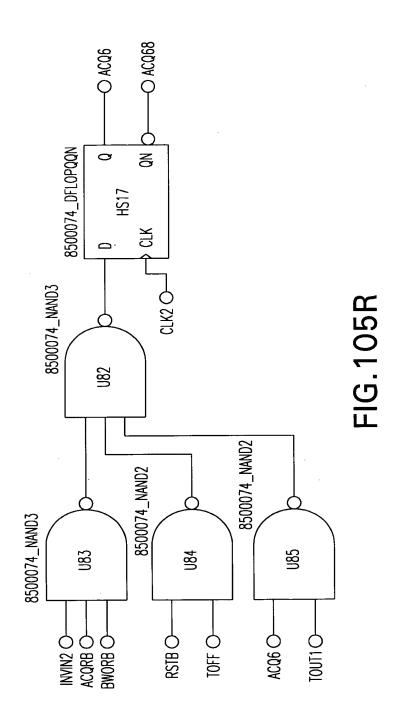
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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit O RXB **∑** 8500074\_DFLOPQQN HS10 CK CLK2 O 8500074\_NAND3 FIG.105P **U33** O BOUSR-BDIVR-BDIVFR 8500074\_NAND4 8500074\_NAND4 8500074\_NAND4 8500074\_NAND2 **U138** 990 **U53 U137** 8500074\_0R3 \$ \$ \$ \$ \$ \$ 8500074\_0R2 ACQ9 O T BCHNGR O T0UT1B () TIMEOUTB 🔾 8500074\_NAND2 **U138 U54 U140** BDUSR Q BDINK Q BINYFR Q BDIVF O BCHNC O 

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For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit



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Appl. No. 09/632,856; Filed: Aug 4, 2000
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Tel. No.: 202-371-2600
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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

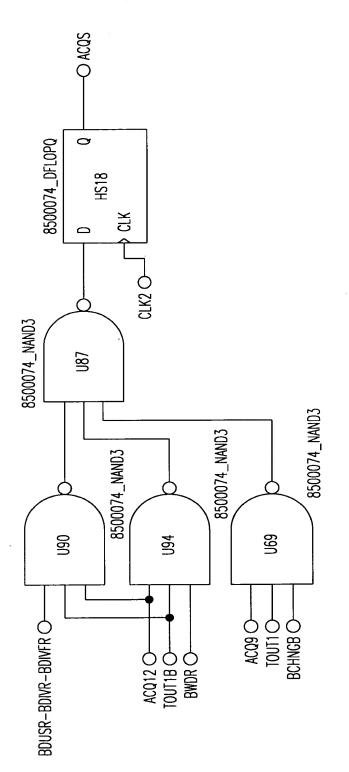
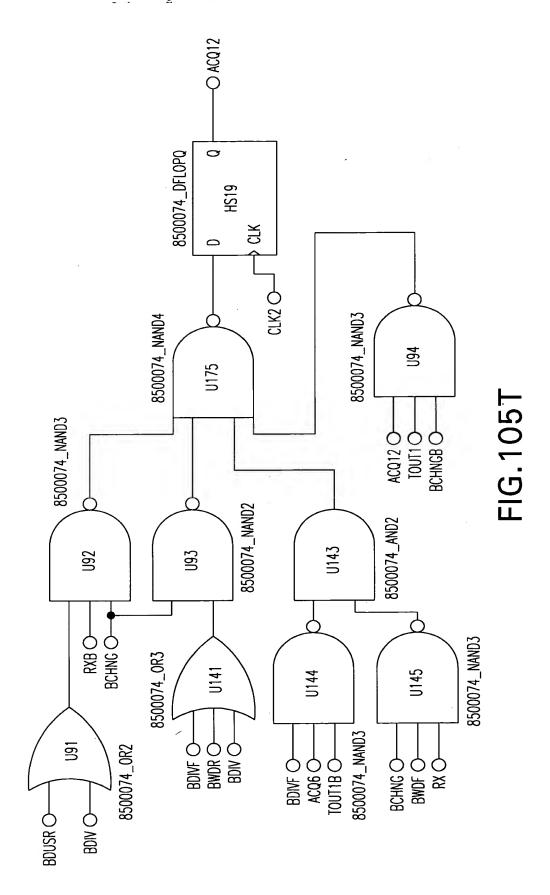


FIG. 105S

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Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit



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For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit

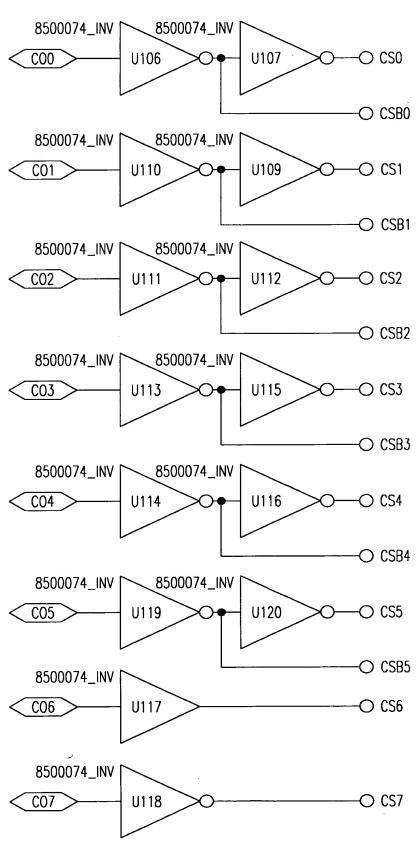


FIG. 105U

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Appl. No. 09/632,856; Filed: Aug 4, 2000
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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

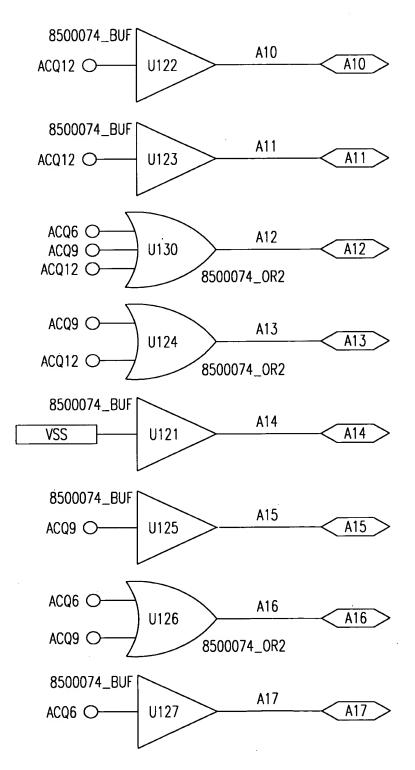
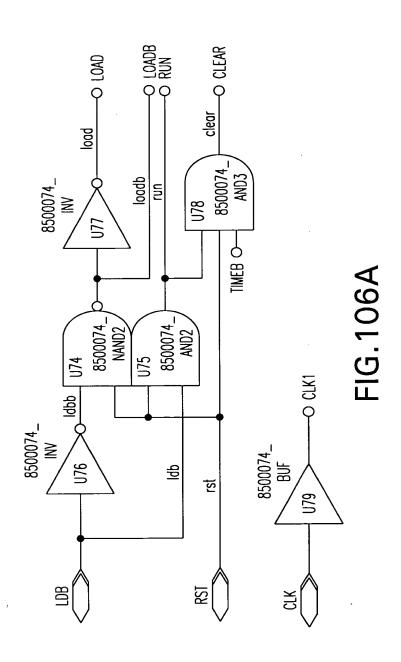


FIG.105V

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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit



Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit 8 8 88 8 Q Φ 8500074\_DFLOPQQN 8500074\_DFLOPQQN 8 중 HS4 HS3 SE 꼸 Ŷ ⋛ 수울 8500074 8500074 NAND3, NAND3 U38 **U37** 8500074\_ 8500074 8500074\_ 8500074 8500074 8500074 NAND2 NAND4 NAND4 NAND4 **U34 U31** LOABB O-LOADB O PS P Res O FERS 9 CLEAR 9 CER 9 LOAD O CEAR 9 10AD Q 8500074\_ NAND4\_ 8500074 NAND3, **U22 U21** 8500074\_ 8500074\_ 8500074 8500074 8500074 8500074 NAND3 NAND3 NAND3 NAND3 NAND3 NAND3 NAND2 010 8 9 ბბბ ოფი Q Q Q Q Q Q Ó Q Ò Ó 888 യായ ထွပ်ဝ 8 8  $\sim$ 

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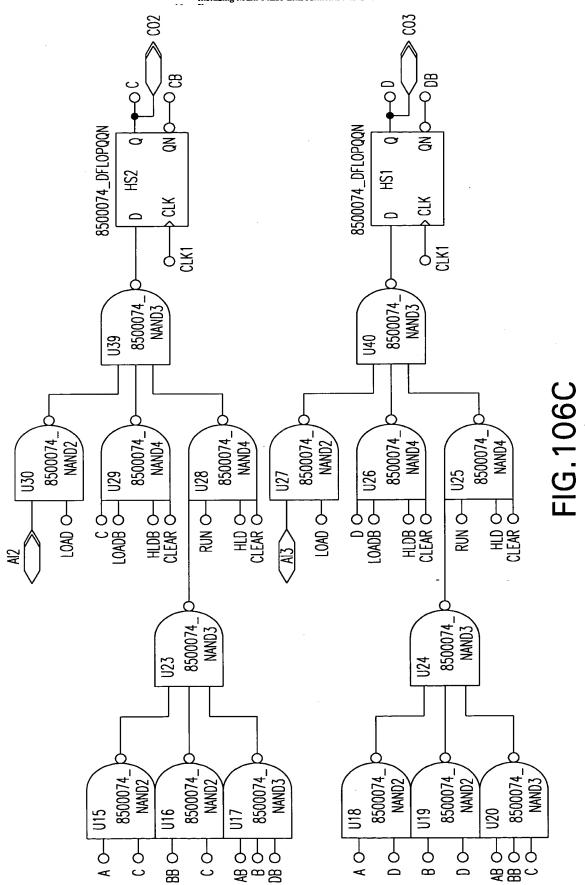
Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.0630003; Group Unit: 2634

FIG.106B

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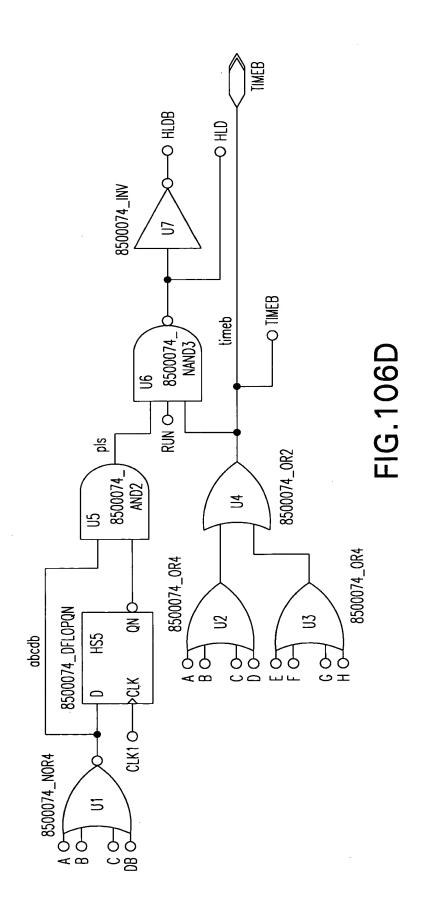
Inventors: Sorrells et al. Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit



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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit



Inventors: Sorrells et al.

Tel. No.: 202-371-2600

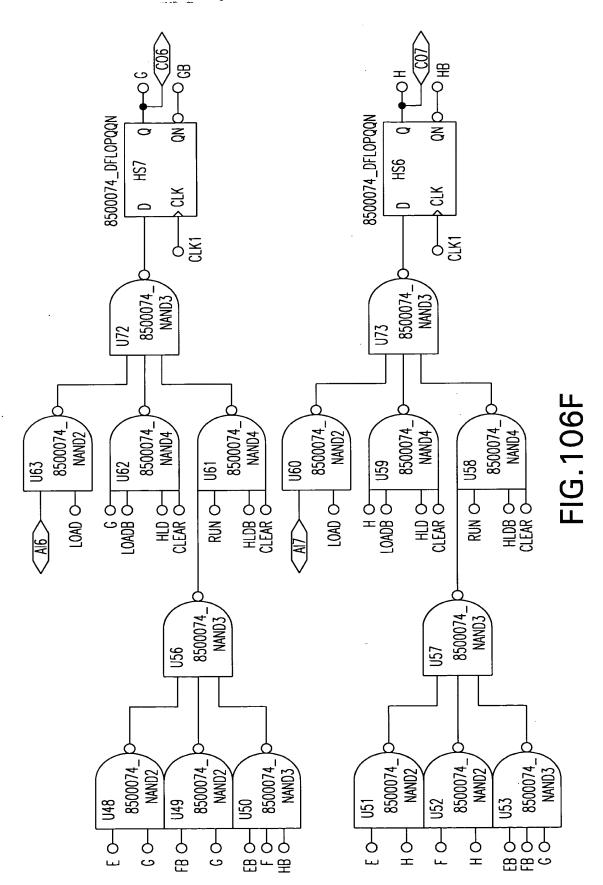
For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit . 202 60 8 8500074\_DFLOPQQN 8500074\_DFLOPQQN 8 8 28 HS9 뜴 끙 수울 8500074 8500074 NAND3, NAND3 171 FIG. 106E 8500074 8500074 8500074 8500074 8500074\_ 8500074 NAND2 NAND4 NAND2 NAND4 NAND4 NAND4 990 690 **068 U65 U64** 190 E O-RIN O Res O FER 9 FER 9 CEAR 9 [SB 9 LOADB O-CEAR 9 10**A**0 8500074\_ NAND4\_ 8500074 NAND3 **U**55 **U54** 8500074\_ NAND3\_ 8500074\_ NAND3\_ 8500074 8500074 8500074 8500074 8500074 NAND2 NAND3 NAND3 NAND3 NAND3 045 **U46 U42 U43 U47 U41 U44** 889 Q 용 수 수 Q Q Q Q Q Q Ò Ò Ó Ò Ò ら空 ლo∓ шOН \_

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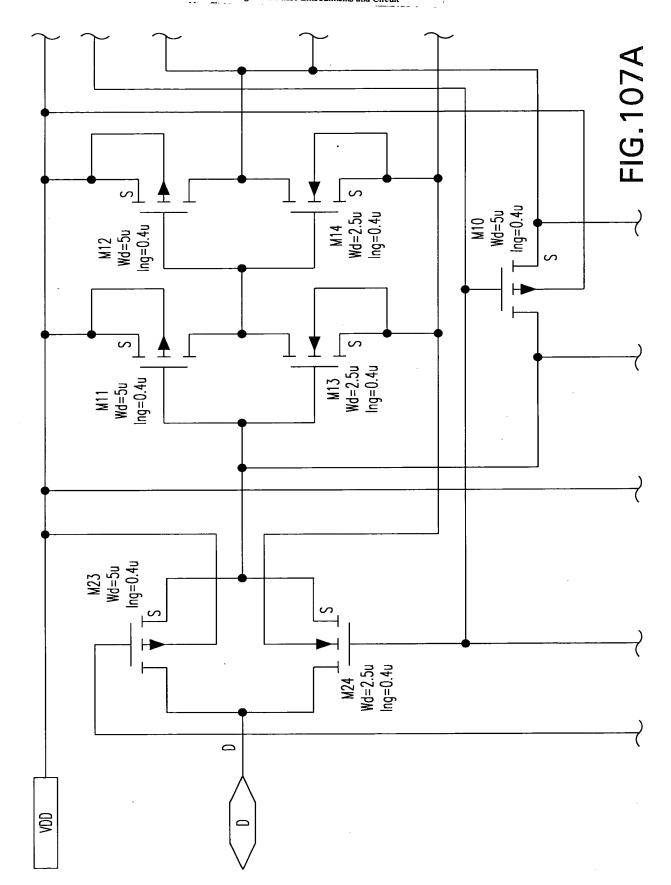
Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.0630003; Group Unit: 2634 Inventors: Sorrells et al. Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit



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For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit



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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit M1 | Wd=10u Ing=0.4u M2 Wd=20u Ing=0.4u FIG.107B Wd=2.5u Ing=0.4u M15 Wd=5u Ing=0.4u M27 Wd=5u Ing=0.4u M19 Wd=5u Ing=0.4u M21 Wd=5u Ing=0.4u -- M22 -- Wd=2.5u Ing=0.4u

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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit FIG.107C M7 Wd=2.5u Ing=0.4u M9 Wd=5u Ing=0.4u S M6 Wd=2.5u Ing=0.4u M5 Wd=5u Ing=0.4u 띥

VSS

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For: Wireless Local Area Network (WLAN) Using
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Including Multi-Phase Embodiments and Circuit

Keplacement Sneet
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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit CHNG 8500074\_AND3 **U52** 8500074\_DFLOPQ HS12 응 OFF 8500074\_NOR2 8500074\_INV **U54** STB 990 NOR1 AND1 8500074\_XNOR2 8500074\_XNOR2 8500074\_AND3 057 046 049 090 8500074\_NOR3 8500074\_DFL0PQ 0 8500074\_INV

FIG. 108

Keplacement Sneet
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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

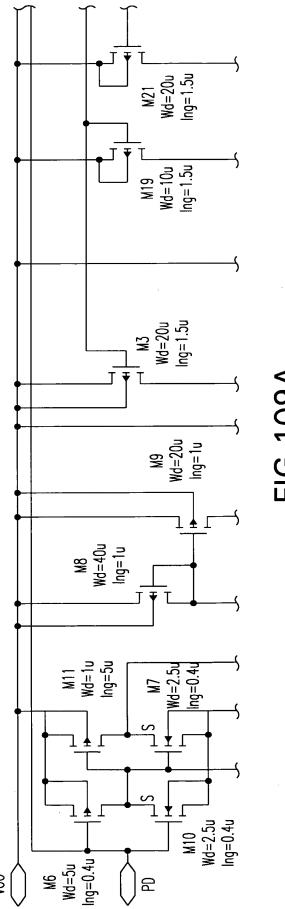


FIG.109A

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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

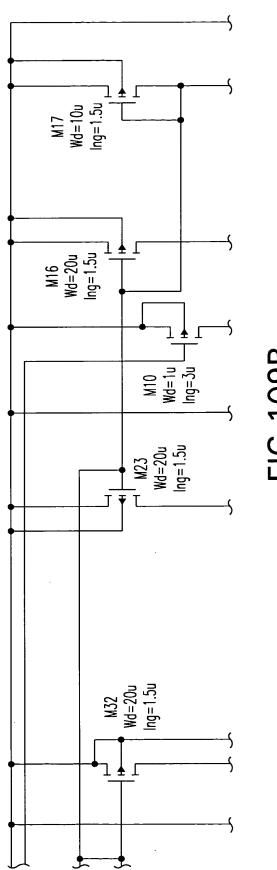


FIG. 109B

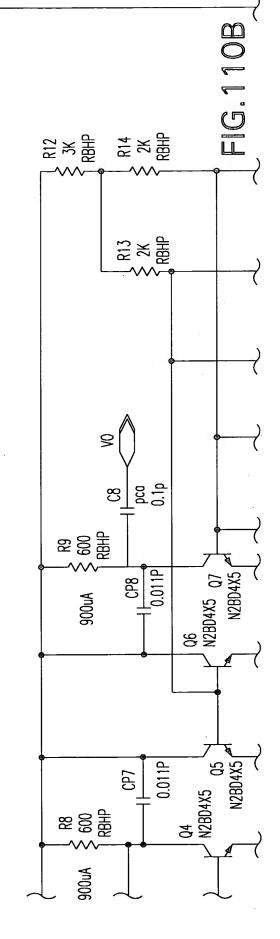
For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit M24 Wd=48u Ing=1u <u>∿</u>1 † [∾ l∳Γ M22 Wd=120u Ing=1u . Σ M20 Wd=3u Ing=1u M14 Wd≒4u Ing=1u  $\sum_{i}$ M2 Wd=96u Ing=1.5u M5 Wd=10u Ing=1.5u FIG.109C M1 Wd=96u Ing=1.5u M4 Wd=10u Ing=1.5u <u>1 ‡ ſ</u> ı∤r∾ M12 Wd=10u Ing=1u M13 Wd=10u Ing=1u NIN+

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FIG. 109D

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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit 0.1p M11 Wd=5u Ing=0.4u 조 末 쟭 750uA M5 Wd=200u Ing=0.4u R20 12X RBHP M3 Wd=40u Ing=0.4u S Wd=5u Ing=0.4u FIG.110A M1 Wd=5u Ing=0.4u lİſ M2 | 1 Wd=2.5u Ing=0.4u VEE 6

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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
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For: Wireless Local Area Network (WLAN) Using
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Including Multi-Phase Embodiments and Circuit



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Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit C4 C4 DC0 0.25p 8 关 쫄 Š \* 2 X 돌 C9 C9 C.5p RBHP R4 02 <sup>L</sup> N2BD4X5 0.0275P CP4 C3 pca 0.25p C6 Pca 0.035p Q1 N2BD4X5 FIG.110C 중눚뾹 750uA C5 pca 0.25p CP5 0.0275P PARASITIC ONLY NOT FOR LAYOUT ALL CP\_ VACC  $\leq$ 

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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit R19 10K RB규 N2BD4X5 010 **충**束뾽 R18 M10 Wd=20u Ing=0.4u \$≈誓 R17 N2BD4X5 9 R16 2K RBHP N2BD4X5 012 M9 Wd=20u Ing=0.4u 222 ★ 10K BHP 15 15 16 C10 Pca 1p 8 경영 종 FIG.110D 09 N2BD4X5 900uA S50 500 ★ Q8 N2BD4X5 RHP 700 RBHP 900uA

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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit J M8 Wd=200u Ing=1u Md=200u | Mg=1u S <u></u> 4 C: P:0 0.6p M17 Wd=1u Ing=5u T L M6 Wd=20u Ing=1u M5 Wd=20u Ing=1u <u>~</u> M4 Wd=10u Ing=1u M1 Wd=200u Ing=1u S M16 Wd=50u Ing=1u M2 Wd=200u Ing=1u M3 Wd=10u Ing=1u Wd=10u Ing=1u <u>~</u>] コすて . . . . . . . . . . . . . M15 Wd=35u Ing=1u <sup>1</sup> M13 Wd=10u Ing=1u M11 Wd=1u Ing=5u M12 Wd=2.5u Ing=0.4u **★** [ S Wd=2.5u Ing=0.4u ユヹ M10 M9 Wd=5u Ing=0.4u **+**₩ 9 

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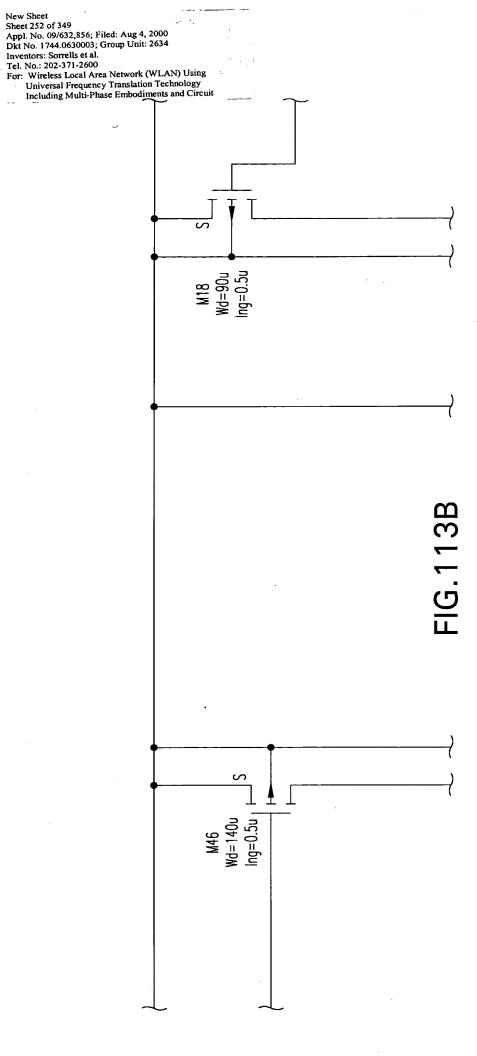
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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit FIG.112B 1.2 RBHP R7 1.2K RBHP

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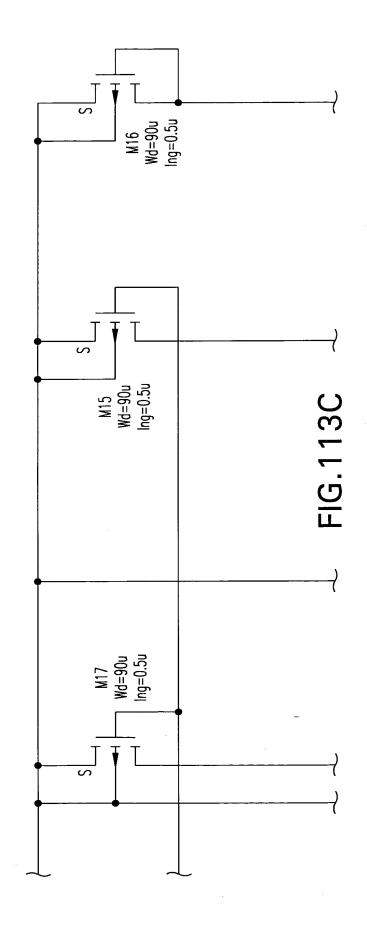
FIG.112C

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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit 2.1m Q6 N2BD4X0 R12 400 RBHP R11 400 RBHP 588u 08 N2BD4X5 588u 573u R36 1.5% RBHP Q4 N2BD4X5 8 × ≥ ₹ Q3 N2BD4X5 5730 RBHP RBHP 261u

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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit S M4 Wd=35u Ing=0.5u M2 Wd=70u Ing=0.5u <u>8</u> S M3 Wd=70u Ing=0.5u



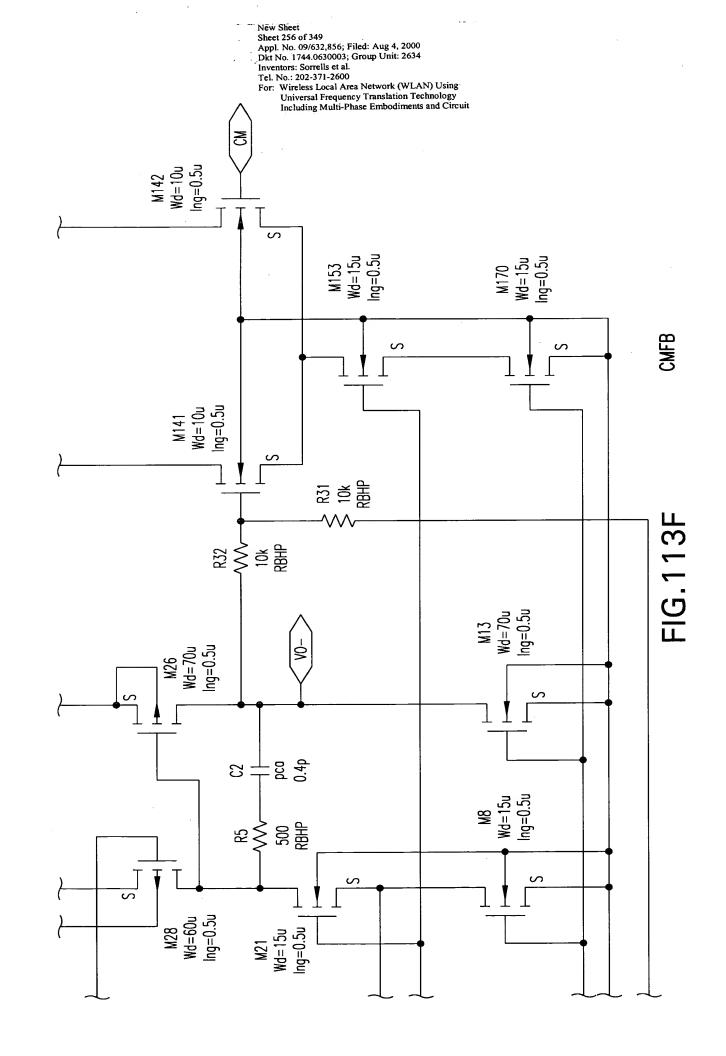
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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
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For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit S M5 Wd=70u Ing=0.5u Wd=15u Ing=0.5u M6 Wd=15u Ing=0.5u BIAS M11 Wd=15u Ing=0.5u M12 Wd=30u Ing=7u M1 | Wd=70u Ing=0.5u M7 Wd=35u Ing=0.5u FIG.113D を草層 M32 Wd=10u Ing=0.5u M31 Wd=10u Ing=0.5u S M29 Wd=1u Ing=5u M30 Wd=2.5u Ing=0.4u M33 Wd=5u Ing=0.4u M34 <sup>1</sup> Wd=2.5u Ing=0.4u PD

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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit M9 Wd=15u Ing=0.5u M22 Wd=15u Ing=0.5u S S M27 Wd=60u Ing=0.5u 12 + 8 d. M25 Wd=70u Ing=0.5u M14 Wd=70u Ing=0.5u ф М FIG.113E M36 Wd=1u Ing=5u M42 Wd=100u Ing=0.5u M45 Wd=70u Ing=0.5u M35 Wd=1u Ing=5u S M44 Wd=100u Ing=0.5u



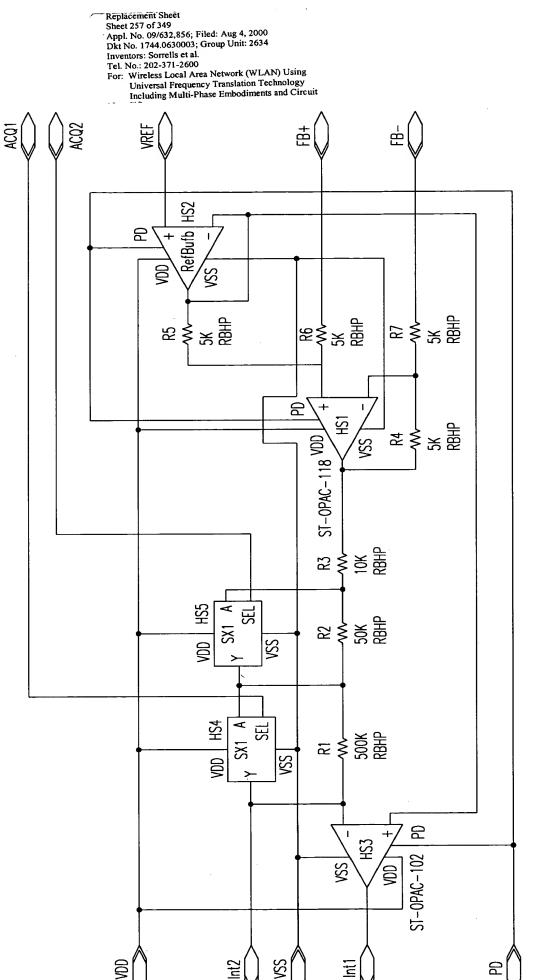


FIG.114

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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit M4 Wd=60u Ing=1u S S M3 Wd=60u Ing=1u M55 Wd=20u Ing=1u S I L 돌 를 는 ~~~~ M54 Wd=20u Ing=1u M53 <sup>1</sup> F Wd=1u Ing=10u M52 Wd=5u Ing=0.4u

FIG. 115A

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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit Z L M10 Wd=60u Ing=1u 88 로 주 동 Wd=60u Ing=1u € llr M8 Wd=60u Ing=1u 종 종 동 동 M7 Wd=60u Ing=1u M18 Wd=10u Ing=1u M17 Wd=40u Ing=1u M16 Wd=10u Ing=1u

M15 Wd=40u Ing=1u

FIG.115B

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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit Q8 N2BD4X20 9 Q7 N2BD4X20 Q6 | N2BD4X20 R8 RBF 2.5K ------------RBHP Q5 N2BD4X20 FIG.115C Q4 N2BD4X20 , Q3 , N2BD4X20 55 5 5 5 5 5 7 7 7 7 M50 Wd=5u Ing=0.4u

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Inventors: Sorrells et al.

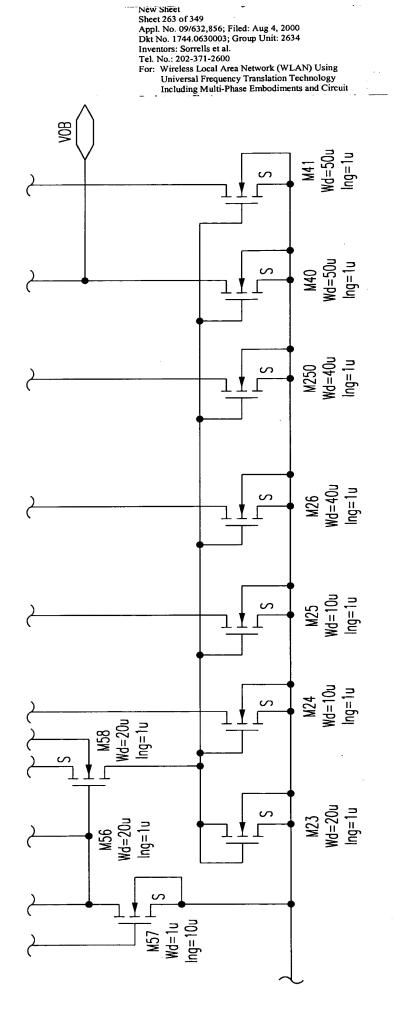
Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using

Universal Frequency Translation Technology

Including Multi-Phase Embodiments and Circuit M6 Wd=50u Ing=1u R12 WBHP 2K M2 Wd=20u ing=1u M5 Wd=50u Ing=1u S FIG.115D M1 Wd=20u Ing=1u 

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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

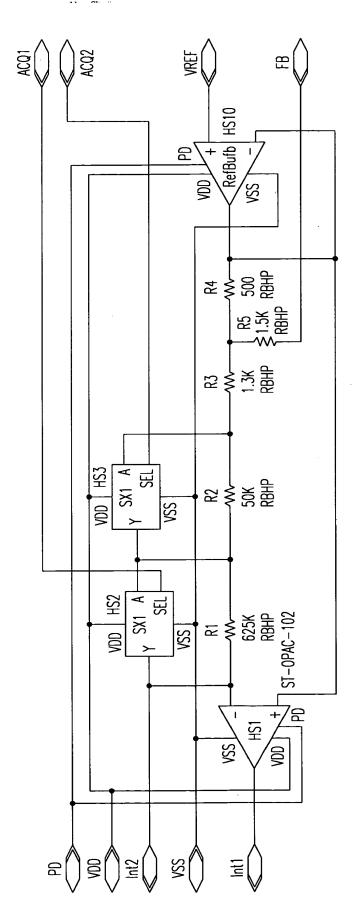


FIG.116

Replacement Sheet Sheet 265 of 349 Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.0630003; Group Unit: 2634 Inventors: Sorrells et al. Tel. No.: 202-371-2600 For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit J M8 Wd=100u Ing=1∪ VOUT  $\begin{array}{c} M \\ Md = 100u \\ lng = 1u \end{array}$ С1 рса 0.5р M17 Wd=1u Ing=5u T L M5 Wd=10u Ing=1u M6 Wd=10u Ing=1u JŢŢ M4 Wd=10u Ing=1u M1 Wd=200u Ing=1u <u>~</u> ZŢ[ S FIG.117 M16 Wd=60u Ing=1u M2 Wd=200u Ing=1u M3 Wd=10u Ing=1u M14 Wd=10u Ing=1u <u>~</u> lľ M15 Wd=30u Ing=1u Wd=10u Ing=1u  $\tilde{}$ M11 Wd=1u Ing=5u Wd=2.5u Ing=0.4u -J∓t M9=5u Ing=0.4u Wd=2.5u Ing=0.4u M10 VSS  $\stackrel{\pm}{\mathbb{N}}$ 9 8

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Appl. No. 09/632,856; Filed: Aug 4, 2000
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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

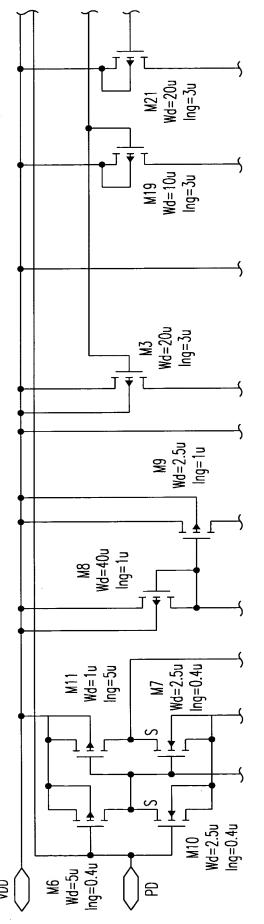


FIG.118A

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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

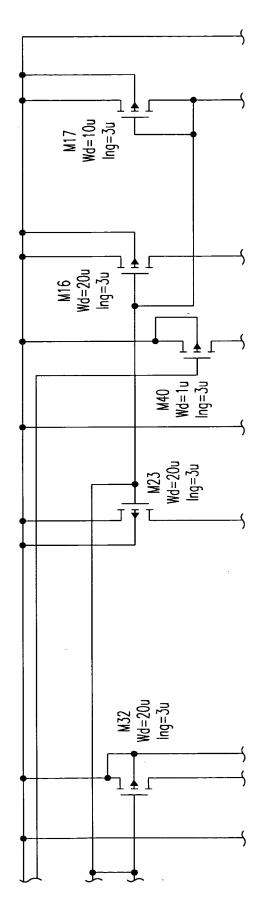


FIG.118B

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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit Ing=2u JAL JΨL M22 Wd=120u Ing=2u LS M20 Wd=3u Ing=2u M16 Wd=4u Ing=2u M2 Wd=96u Ing=3u M5 Wd=10u Ing=3u FIG. 118C M1 Wd=96u Ing=3u M4 Wd=10u Ing=3u JķΓ ראוריי M12 Wd=10u Ing=1u NA L S XIN+

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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Windows Local Area Network (WLA) For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit VOUT M15 L Wd=120u Ing=2u M39 Wd=10u Ing=3u M14 Wd=300u Ing=2u M41 Wd=1u Ing=3u 다 라 M29 Wd=12u Ing=1u 25 S M33 Wd=3u Ing=2u M34 Wd=6u Ing=2u l ¥ L∾ M25 Wd=18u Ing=2u M35 Wd=6u Ing=2u M38 Wd=12u Ing=2u M31 Wd=60u Ing=2u M36 Wd=3u Ing=2u  $\Gamma$ M37 Wd=12u Ing=2u  $\Gamma$ <u></u>

1 J ₹ L∾ M30 Wd=60u Ing=2u l ∤ ⊡ M28 Wd=24u Ing=2u M27 Wd=32u Ing=3u

FIG.118D

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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit INTREF EXTRE ST-OPAC-117 VDD SS 588 <u>a</u> ST-0PAC-116 I VSS R3 3.145K \$ RBHP \$ 쮼 햦 9 HS7 M10 Wd=40u Ing=1u 8 띪 FIG.119 014 S I IR 20 20 음문 85 678 開 VSS 9 015 SΤ MD4X1D4 016 ND4X1D4 M11 Wd=40u Ing=1u Q18 Q17 ND4X1D4 8 ND4X1D4 019 ND4X1D4 020 ND4X1D4 021 ND4X1D4 022 M12 Wd=1u Ing=5u ND4X1D4 N2B05XD7 024

Replacement Sneet

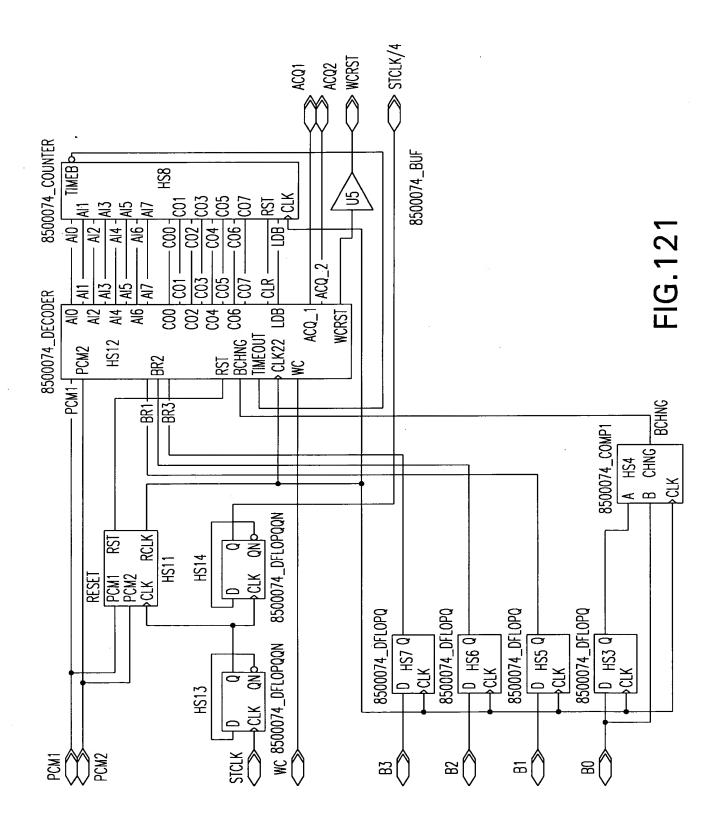
Replacement Sheet Sheet 271 of 349 Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.0630003; Group Unit: 2634 Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit TXB\_PD RXB\_PD BG\_P0 NOR1L) PMC1

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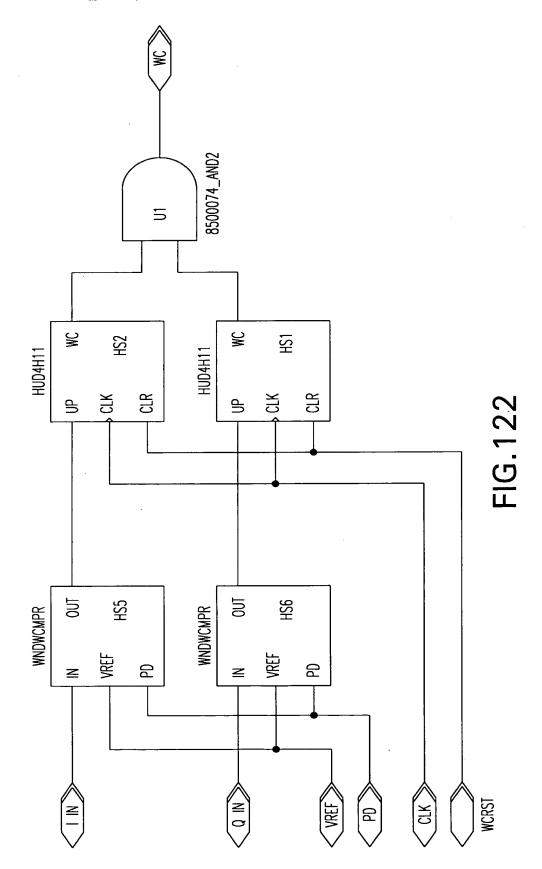
Inventors: Sorrells et al.

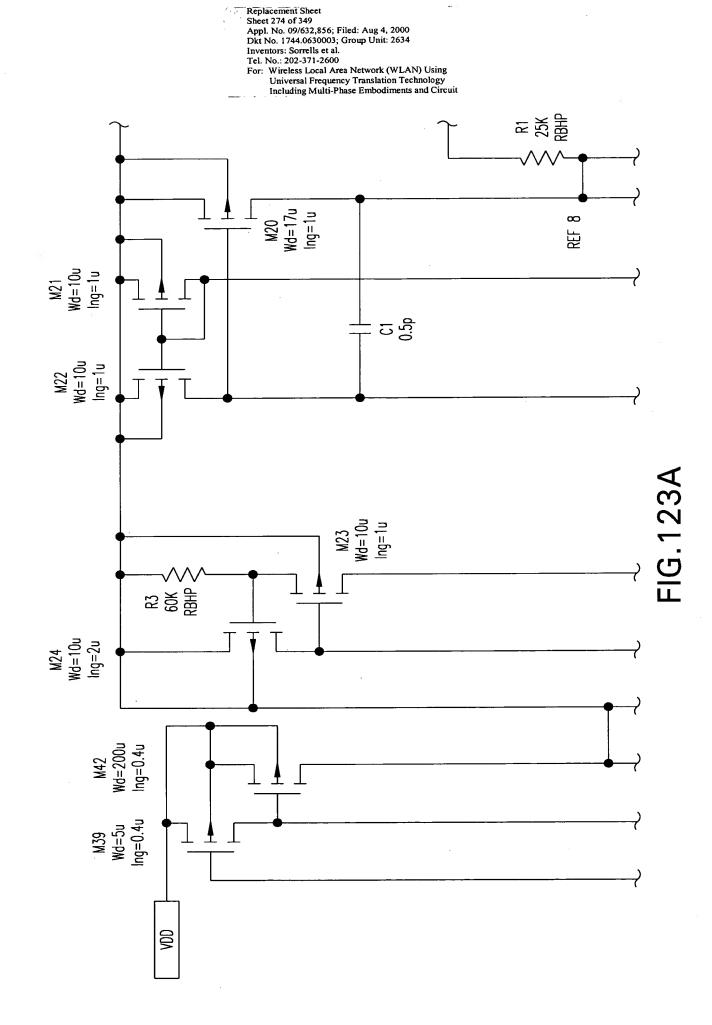
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

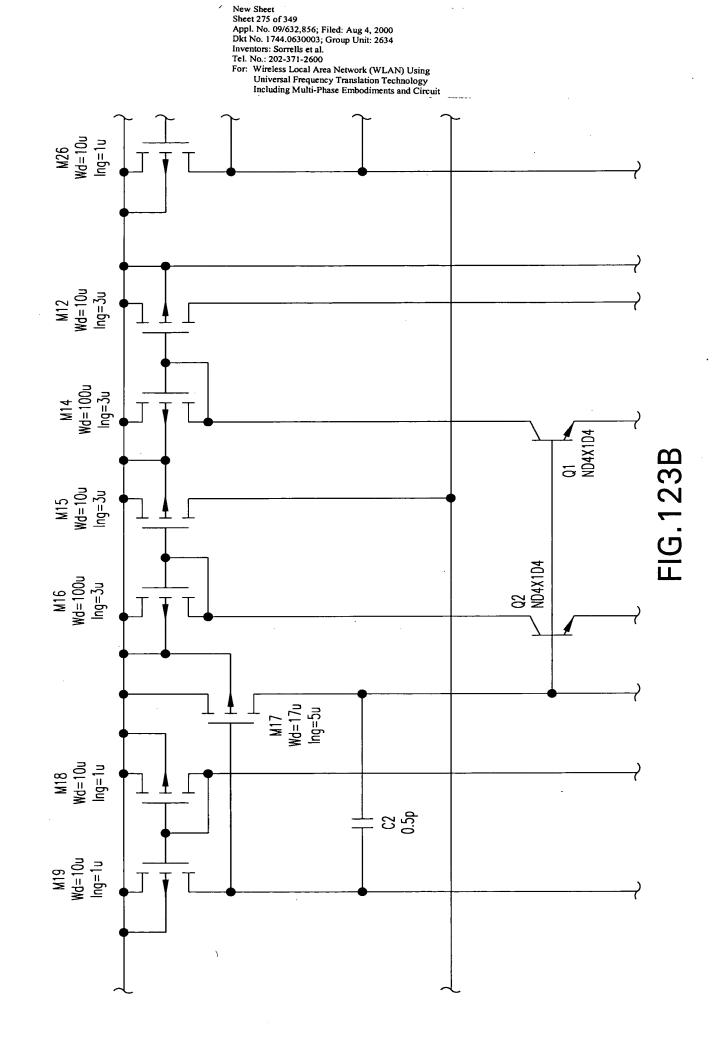


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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

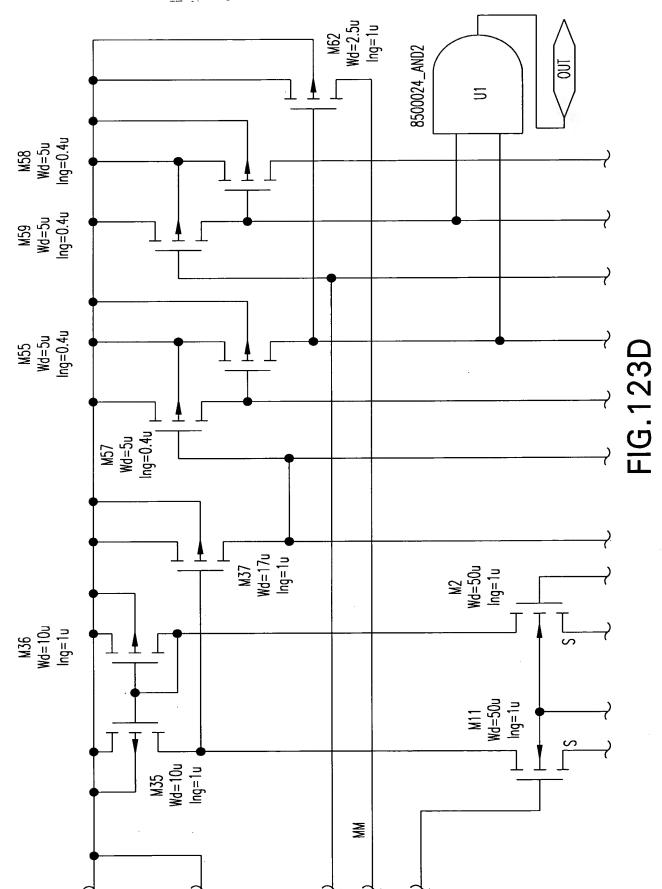






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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit Wd=17u Ing=1u M1 Wd=50u Ing=1u M33 Wd=10u Ing=1u M9 Wd=50u Ing=1u M32 Wd=10u Ing=1u \=( Wd=2u Ing=3u FIG.123C M30 Wd=100u Ing=3u 03 ND4X1D4 M54 Wd=2u Ing=3u Q6 ND4X1D4 M29 Wd=100u Ing=3u M28 Wd=17u Ing=5u Ы M27 Wd=10u Ing=1u

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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
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For: Wireless Local Area Network (WLAN) Using
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Including Multi-Phase Embodiments and Circuit



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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit M45 Wd=5u Ing=1u S M6 Wd=50u Ing=1u 吊 OP AMP M44 Wd=5u Ing=1u M5 Wd=50u Ing=1u FIG.123E M43 Wd=20u Ing=1u BIAS M25 Wd=1u Ing=40u M41 Wd=2.5u Ing=0.4u M40 Wd=2.5u Ing=0.4u

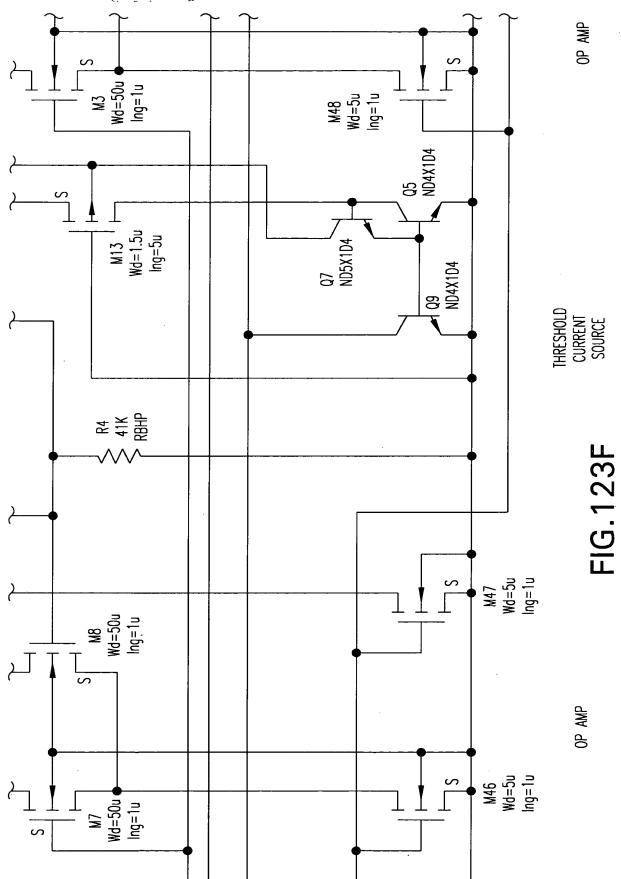
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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

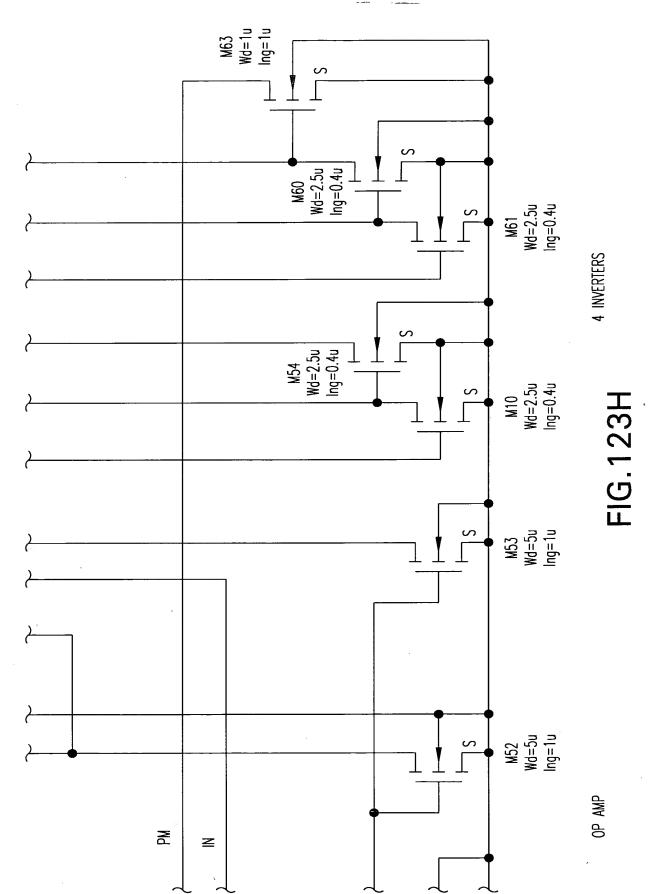


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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit M51 Wd=5u Ing=1u M50 Wd=5u Ing=1u OP AMP S FIG. 123G Q4 ND4X1D4 M36 Wd=1.5u Ing=5u 08 ND4X1D4 4 010 ND4X1D4 HYSTERESIS CURRENT SOURCE M49 Wd=5u Ing=1u M44 Wd=50u Ing=1u 눋

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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit



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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit

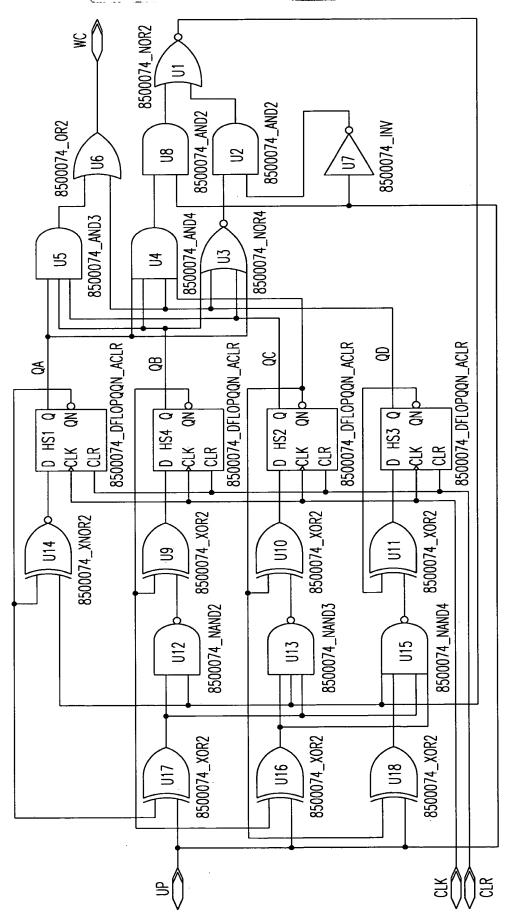
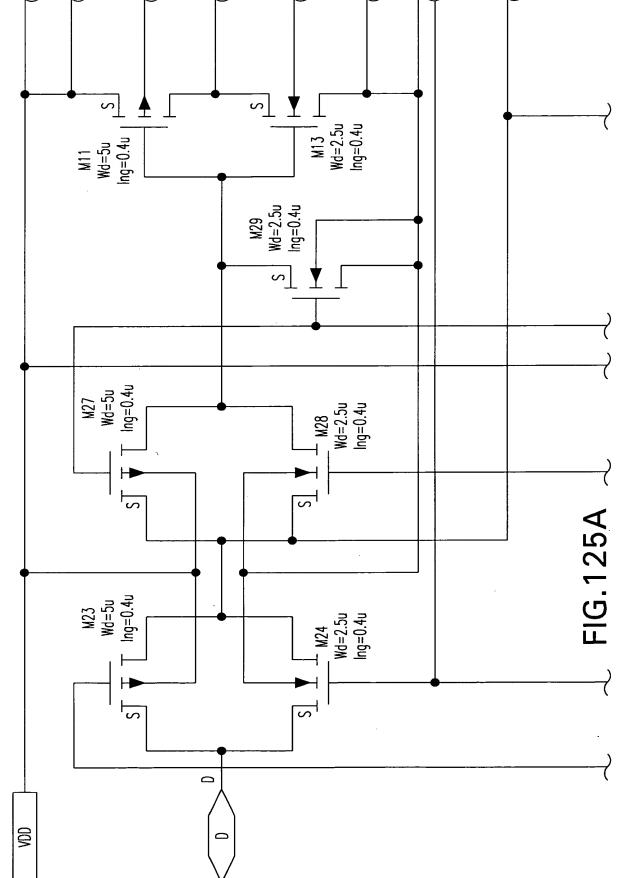


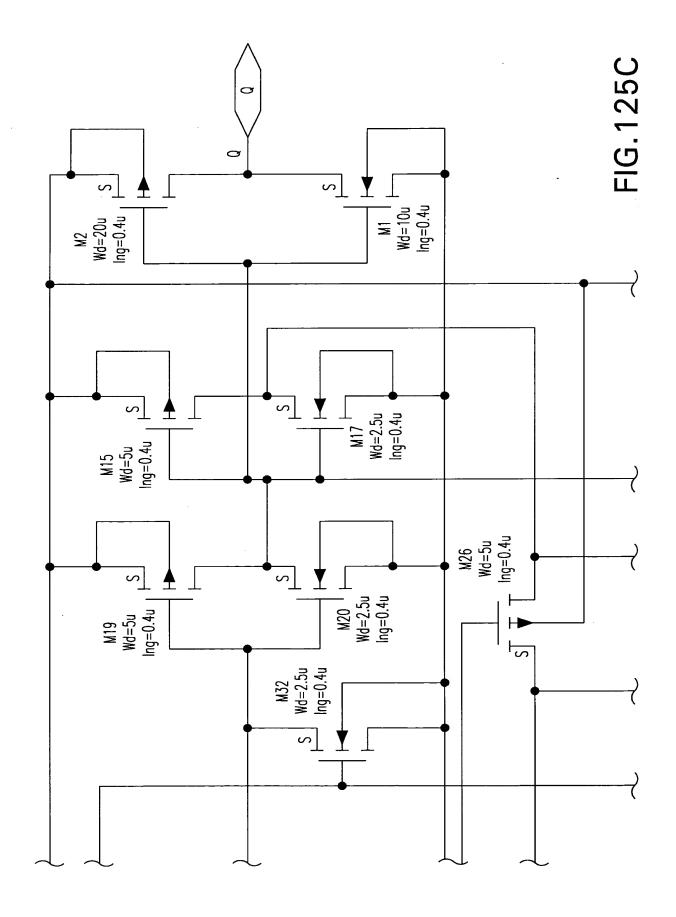
FIG.124

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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit M13 <sup>1</sup> Wd=2.5u Ing=0.4u



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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit FIG.125B M31 Wd=5u Ing=0.4u L M30 Wd=2.5u Ing=0.4u  $\vdash$ S M21 Wd=5u Ing=0.4u \_ M22 Wd=2.5u Ing=0.4u S S M14 Wd=2.5u Ing=0.4u M12 Wd=5u Ing=0.4u M10 Wd=5u Ing=0.4u

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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

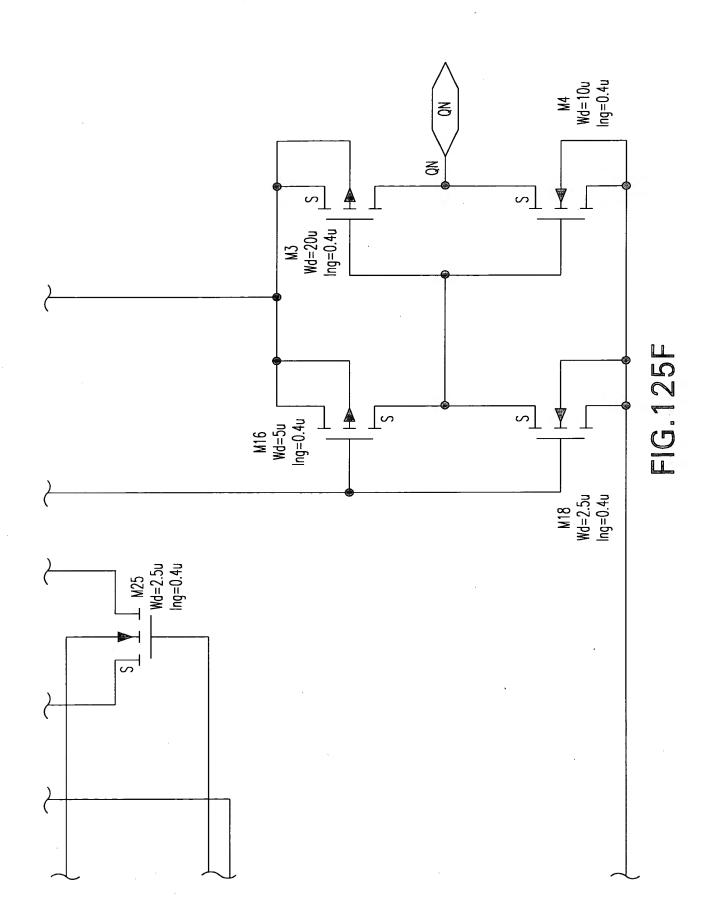


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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit M7 Wd=2.5u Ing=0.4u  $\sqrt{\sim}$ M5 Wd=5u Ing=0.4u M6 L Wd=2.5u Ing=0.4u S. K. VSS CK

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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit FIG.125E S

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Inventors: Sorrells et al.
Tel. No.: 202-371-2600

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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

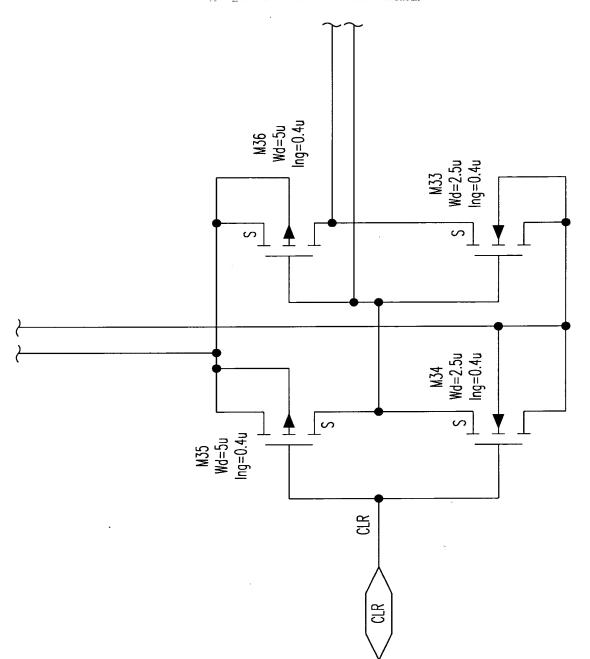
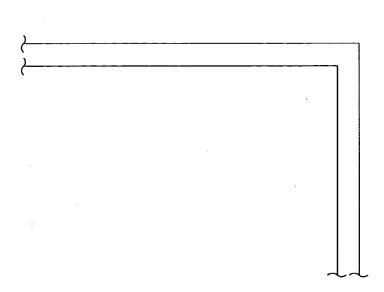


FIG.125G

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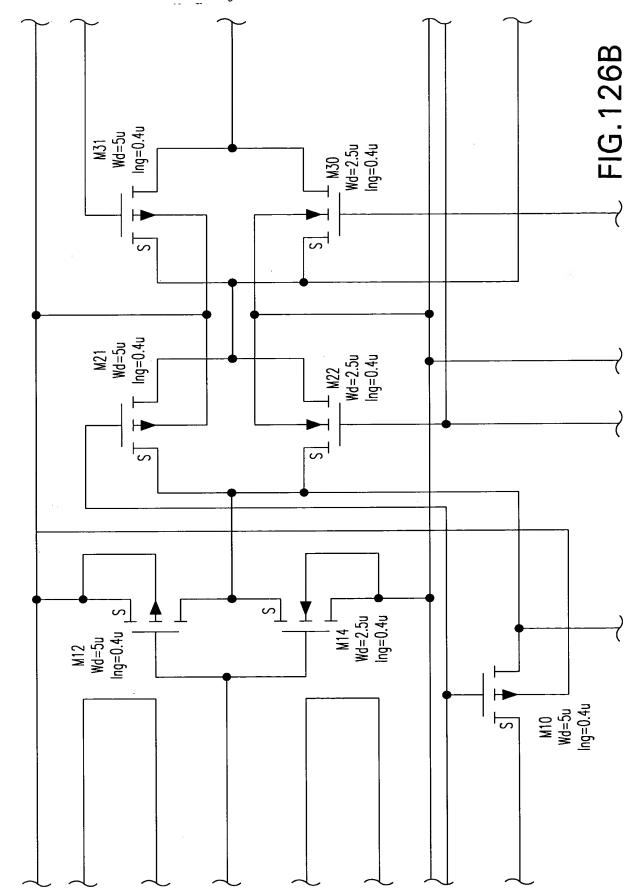
Sheet 290 of 349
Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit



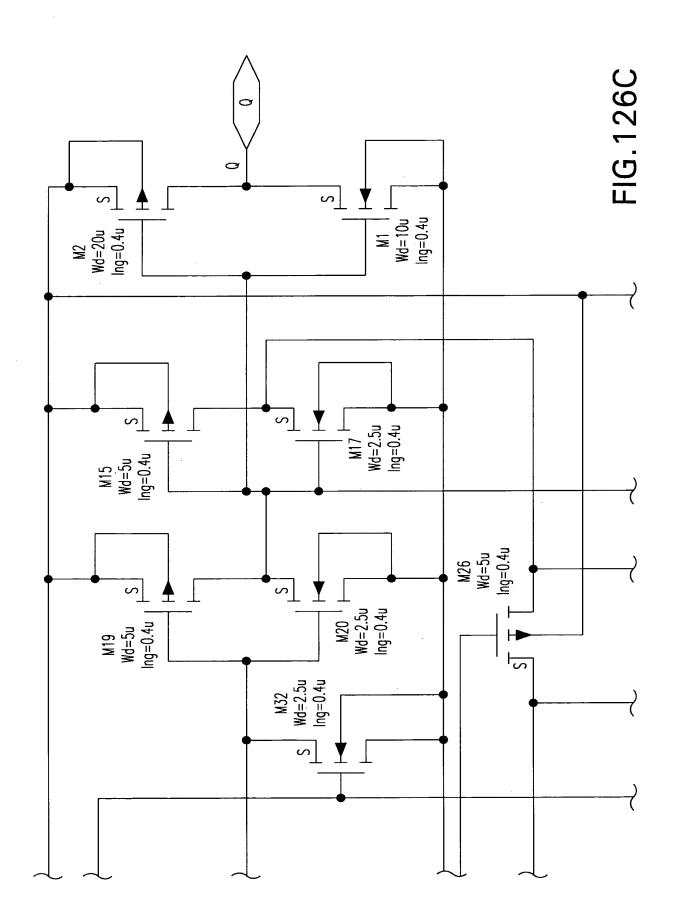
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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit M13 <sup>|</sup> Wd=2.5u Ing=0.4u M11 Wd=5u Ing=0.4u M29 Wd=2.5u Ing=0.4u M27 Wd=5u Ing=0.4u L M28 Wd=2.5u Ing=0.4u S FIG.126A M23 Wd=5u Ing=0.4u \_ M24 \_ Wd=2.5u Ing=0.4u <u>~</u>  $\Gamma$ S 9

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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600

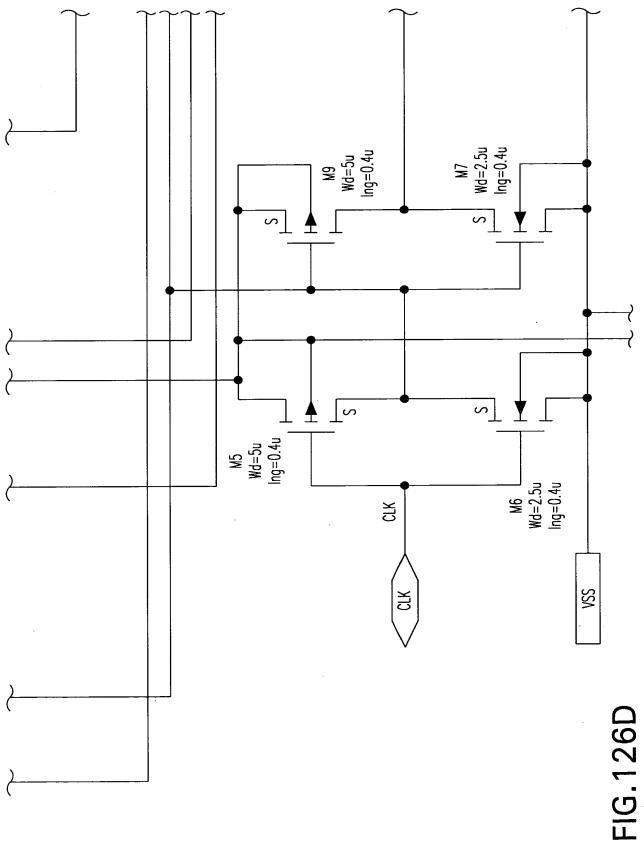
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

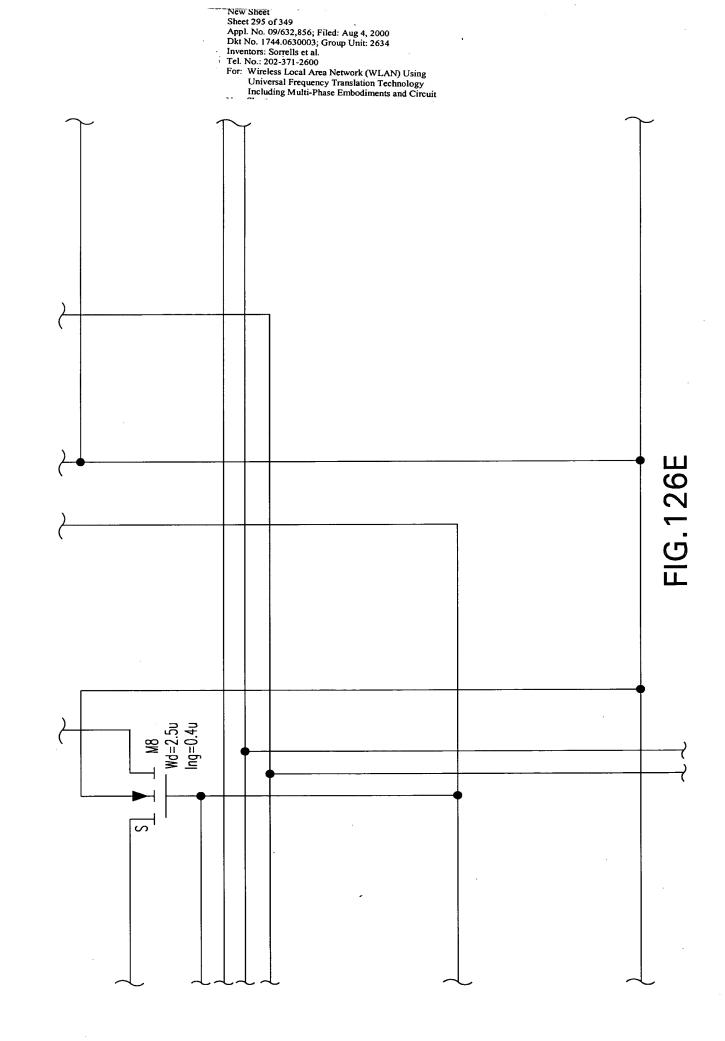


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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

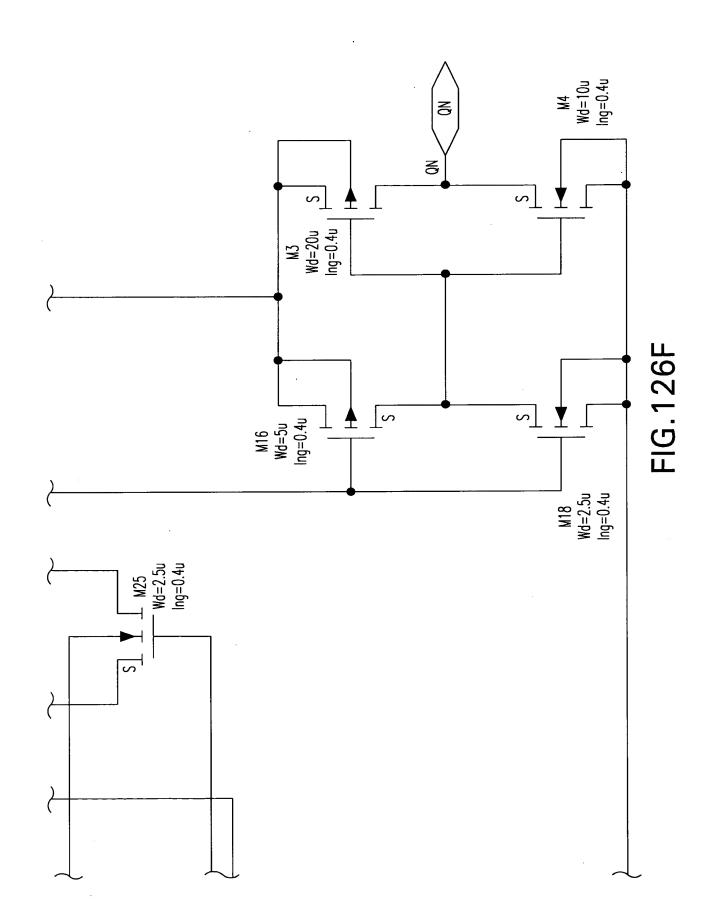


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Dkt No. 1744.0630003; Group Unit: 2634
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Tel. No.: 202-371-2600
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Including Multi-Phase Embodiments and Circuit





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Inventors: Sorrells et al.
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Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit



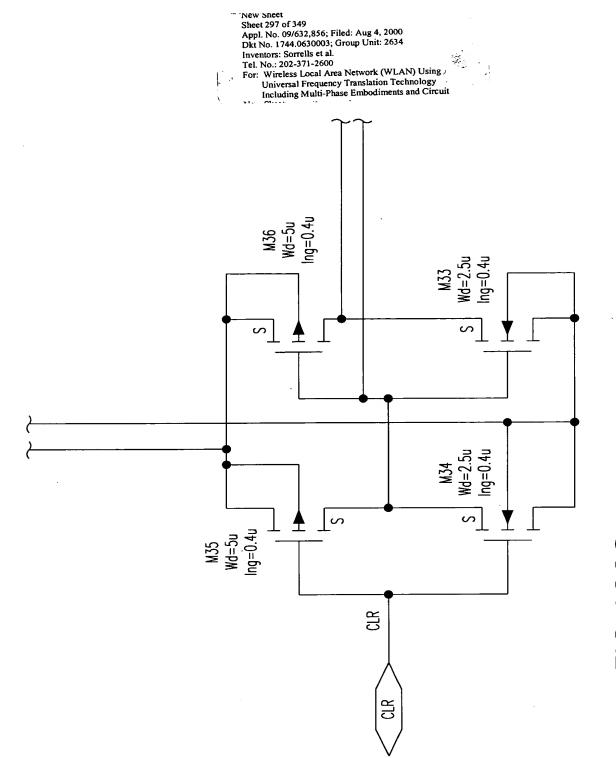
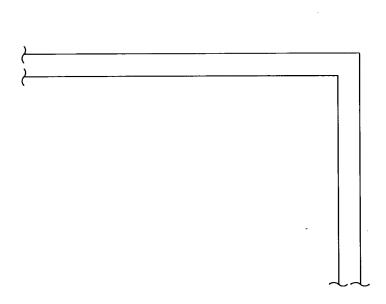


FIG.126G

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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

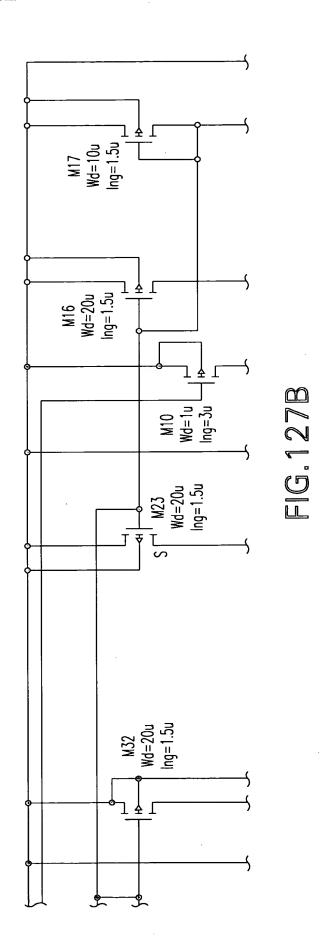


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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600 For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit M21 Wd=20u Ing=1.5u M19 Wd=10u Ing=1.5u M9 Wd=20u Ing=1u M8 Wd=40u Ing=1u M11 Wd=1u Ing=5u \_ T\_T\_L  $\stackrel{\sim}{\vdash}$ M10 ' F Wd=2.5u Ing=0.4u

M6 Wd=5u Ing=0.4u

FIG.127A

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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit <u>∾1</u> ₹ [ l∳ſ M22 Wd=120u Ing=1u  $\sim$  T M20 Wd=3u Ing=1u M16 Wd=4u M2 Wd=96u Ing=1.5u M5 Wd=10u Ing=1.5u M1 Wd=96u Ing=1.5u M4 Wd=10u Ing=1.5u ] <u>∳</u> [∽ SS

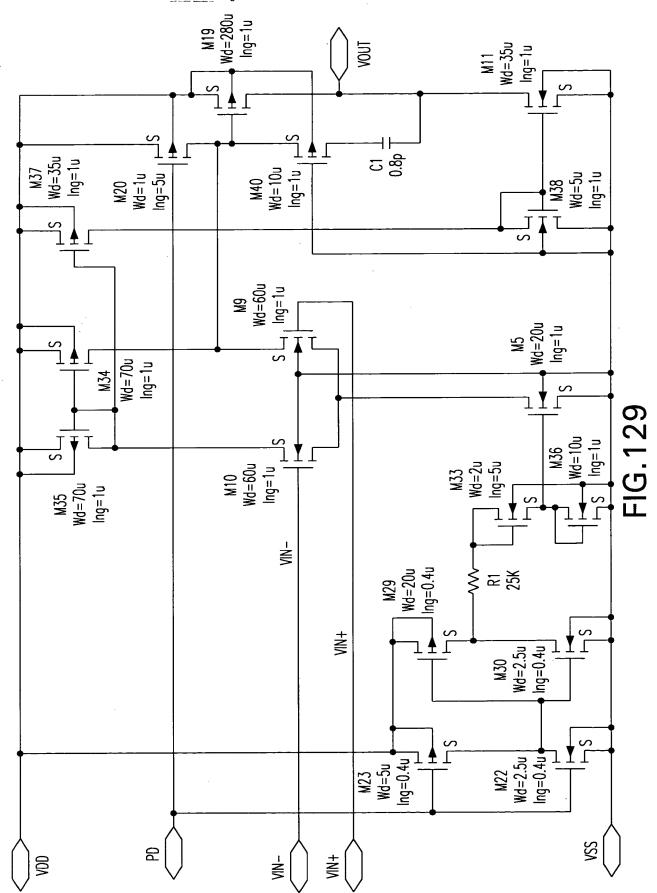
FIG.127C

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Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit VOUT 1 <del>|</del> [S M39 Wd=10u Ing=1.5u M15 L Wd=120u Ing=1u Wd=180u Ing=1u S M41 Wd=5u Ing=3u R2 1200 RP1P C.2 0.3c pco **★** [S M28 Wd=12u Ing=1u S M33 Wd=3u Ing=1u M34 Wd=6u Ing=1u **₹** [~ M25 Wd=12u Ing=1u M35 Wd=6u Ing=1u M38 Wd=12u Ing=1u S M31 Wd=60u Ing=1u M36 Wd=3u Ing=1u  $\Gamma$ M37 Wd=12u Ing=1u  $\Gamma$ ∞া ₹ J∳I M30 Wd=60u Ing=1u \_ ₹ L≥ M29 Wd=24u Ing=1u M27 S Wd=32u Ing=1.5u

FIG.127D

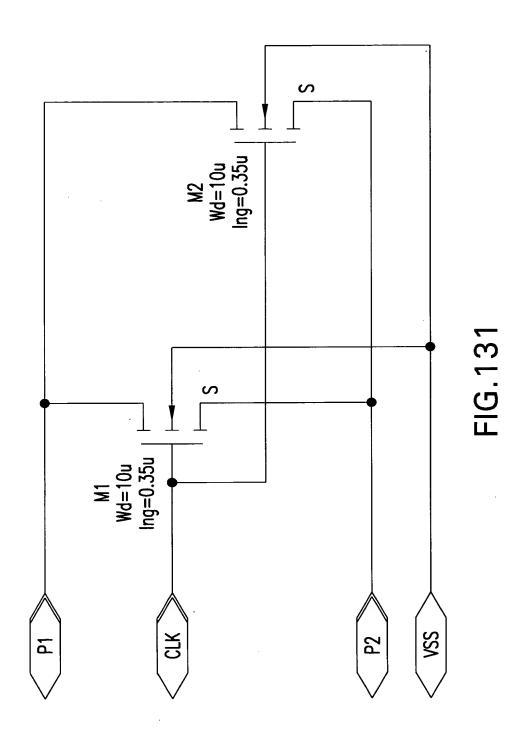
Replacement Sheet /Sheet 303 of 349 Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.0630003; Group Unit: 2634 Inventors: Sorrells et al. Tel. No.: 202-371-2600 For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit **VOLT** M6 Wd=100u Ing=2u ¥ ₩ ĮĮ. M12 W Wd=300u Ing=2u دع 1.5و 1.9K 1.9K RBHP M3 Wd=10u Ing=2u 1¥⊬ ي آ M11 Wd=30u Ing=2u M5 Wd=10u Ing=2u M13 Wd=200u Ing=2u ي آ l I S FIG.128 L'S Z I¶C  $\frac{1}{2}$ M4 Wd=10u Ing=2u M10 Wd=20u lng=2u M14 Wd=200u Ing=2u Wd=10u Ing=1u ي آ 55条整 M17 Wd=10u Ing=1u Wd=10u Ing=2u Wd=1u Ing=5u M15 Wd=2.5u Ing=0.4u M16 Wd=200u Ing=0.4u M2 Wd=5u Ing=0.4u Wd=2.5u Ing=0.4u # 品 VSS

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Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit Ing=0.4u Wd=100u M1 Ing=0.4u Wd=100u T M2 Ing=0.4u Wd=200u M10 Ing=0.4u Wd=200u M9 S Ing=0.4u Wd=5u M8 lng=0.4u Wd=10u M7 S Ing=0.4u Wd=5u M6 Ing=0.4u Wd=10u M5 FIG. 130 Ing=0.4u Wd=5u M4 Ing=0.4u Wd=10u M3 S

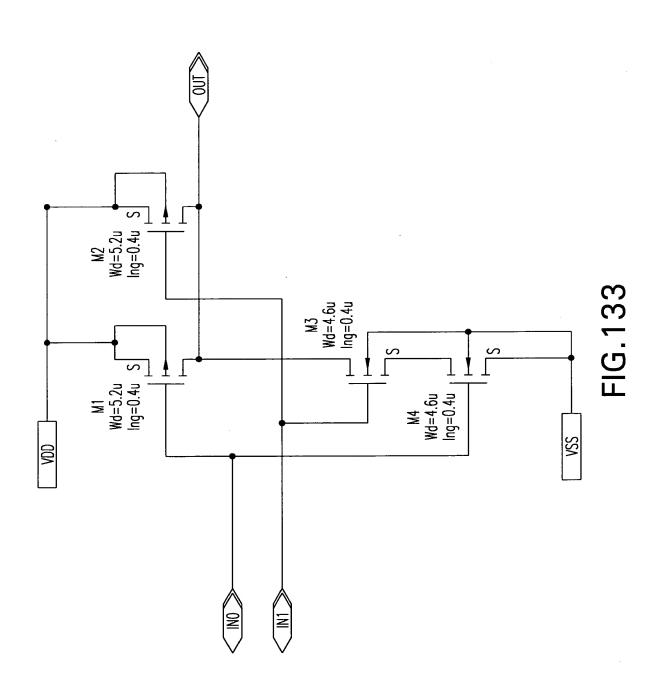
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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
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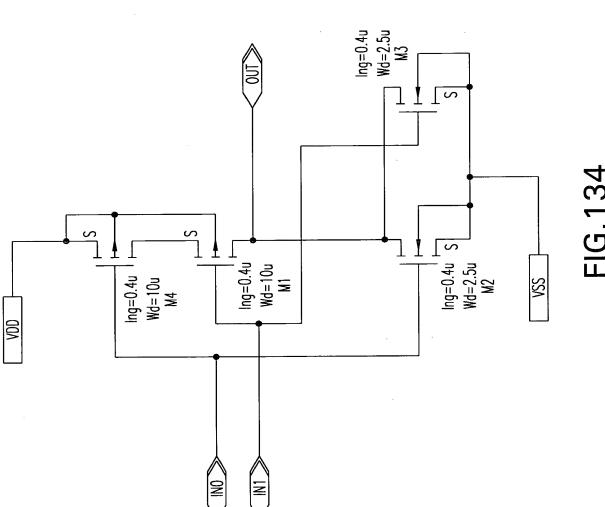
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Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit M12 Wd=20u Ing=0.4u L M10 Wd=10u Ing=0.4u Ś L Wd=10u Ing=0.4u Ing=0.4u Wd=20u Ing=0.4u Wd=20u MZ M13 M1 Wd=10u Ing=0.4u Ś Ś VSS Ing=0.4u  $\frac{1}{2}$  Wd=10u Wd=20u Ing=0.4u STOTE MII S M8 Wd=5u Ing=0.4u Ing=0.4u Wd=10u Ing=0.4u M6 Wd=5u Ing=0.4u Wd = 10uZ Fr Ing=0.4u Ing=0.4u Wd=5u Wd=10u **M**4 īī. Š 9 VSS SE

FIG. 132

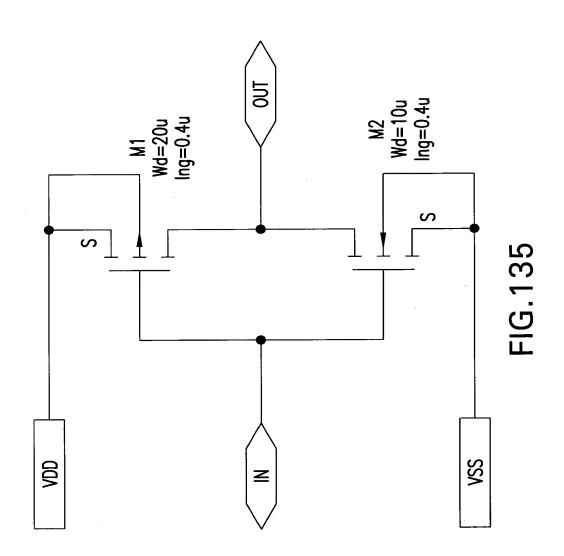
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Including Multi-Phase Embodiments and Circuit



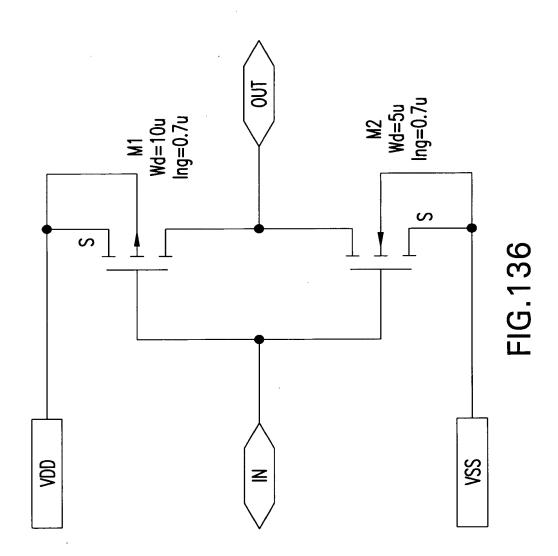
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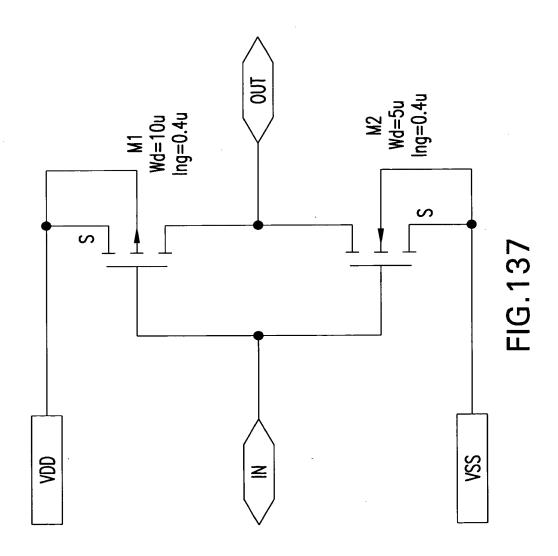
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Inventors: Sorrells et al.
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Including Multi-Phase Embodiments and Circuit



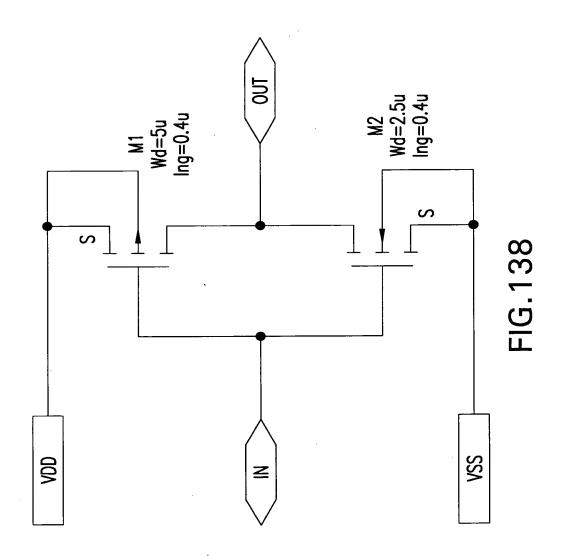
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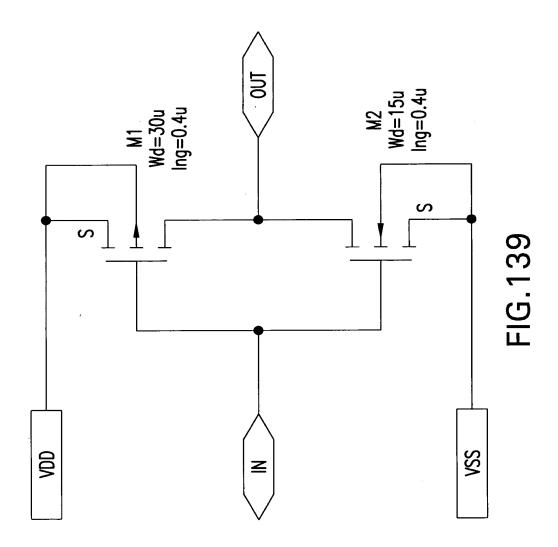
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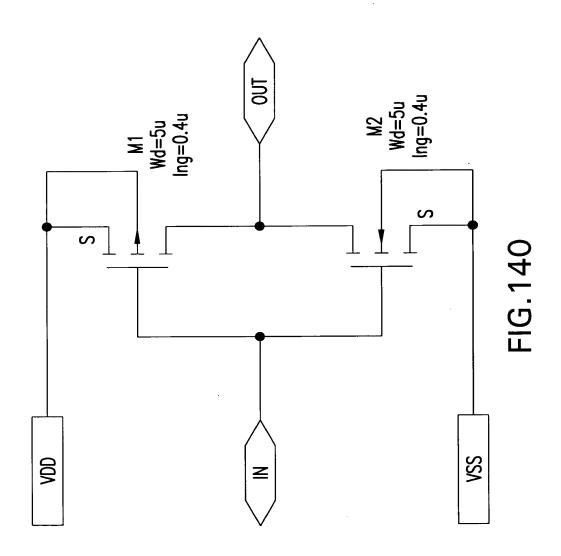
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Inventors: Sorrells et al.
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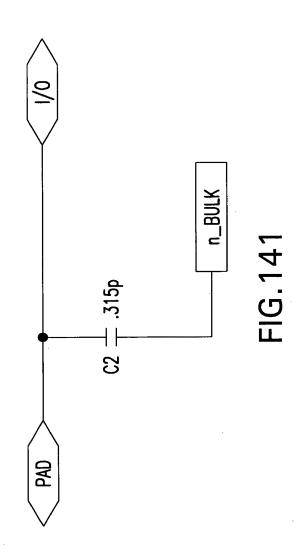
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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
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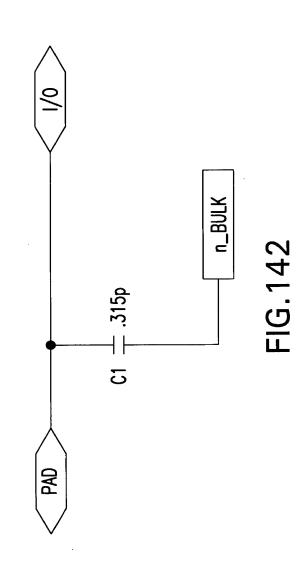
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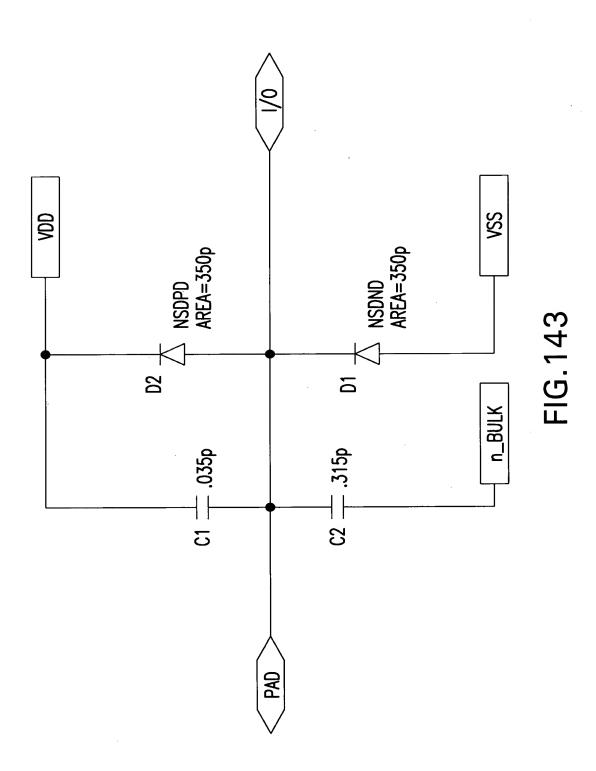
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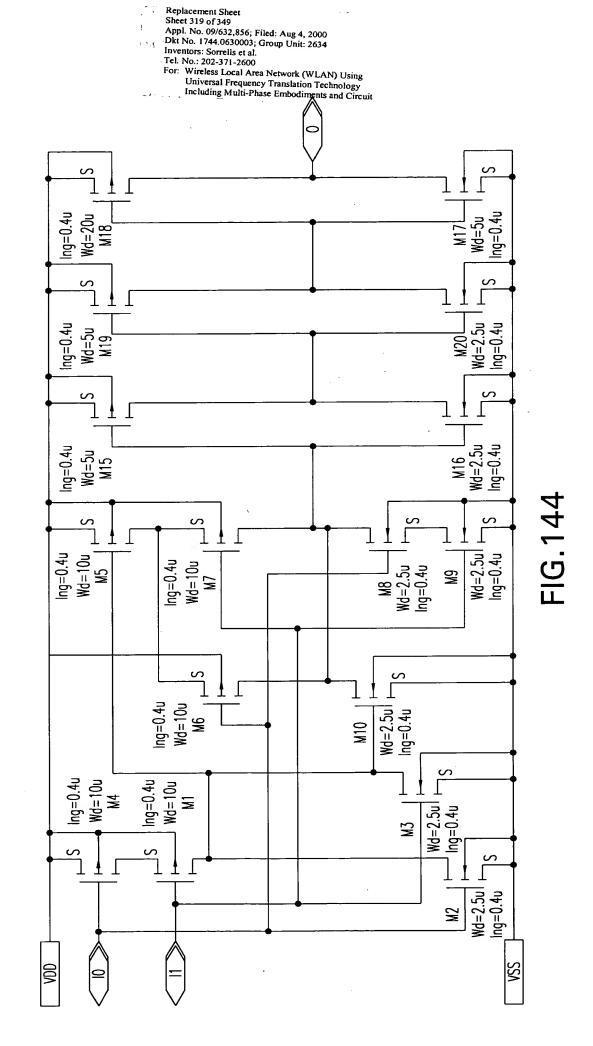


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Inventors: Sorrells et al.
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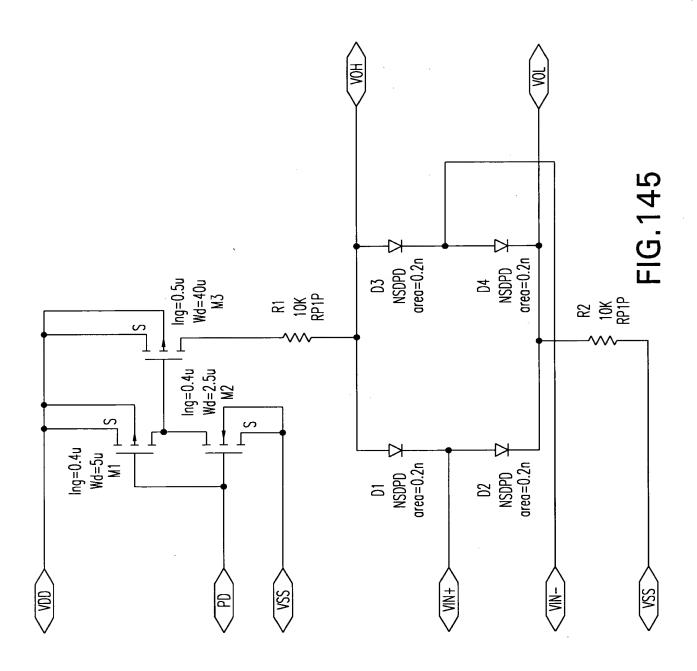


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Inventors: Sorrells et al.
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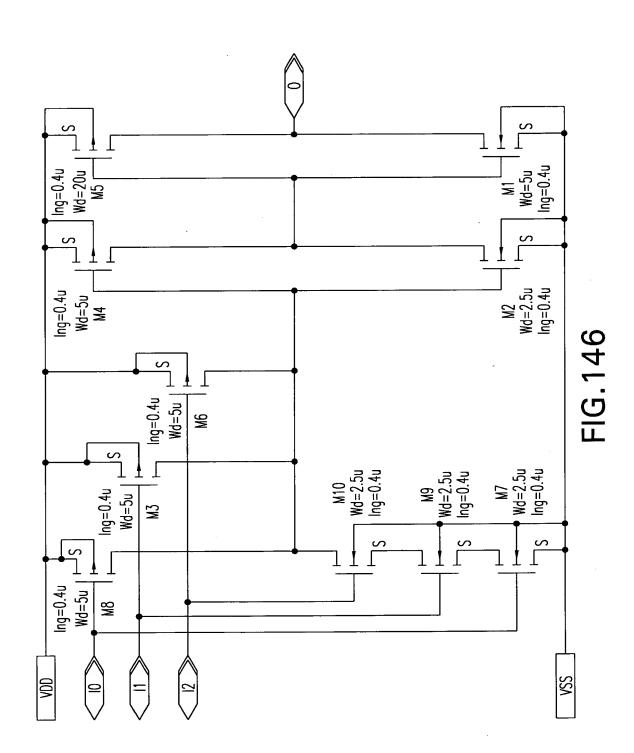




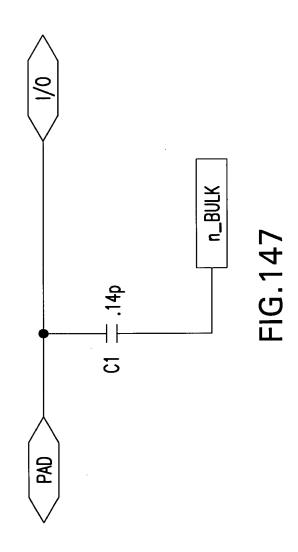
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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
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Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit



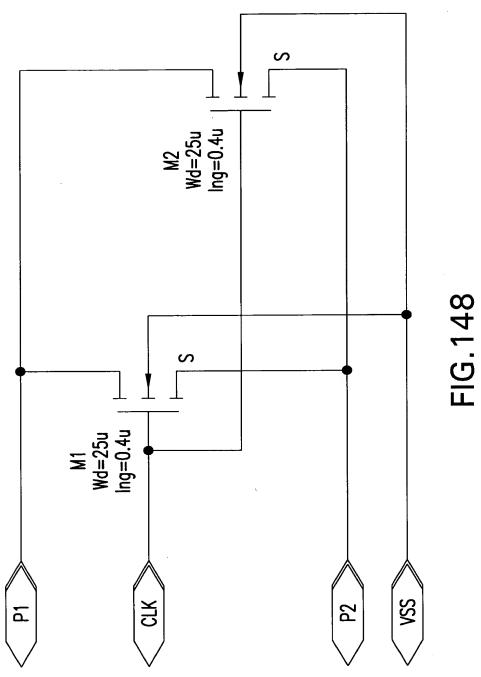
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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
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Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit



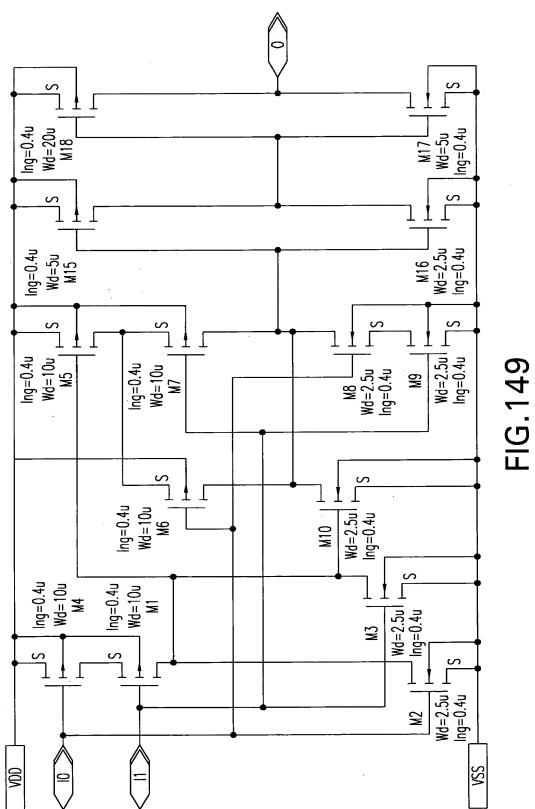
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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
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Including Multi-Phase Embodiments and Circuit



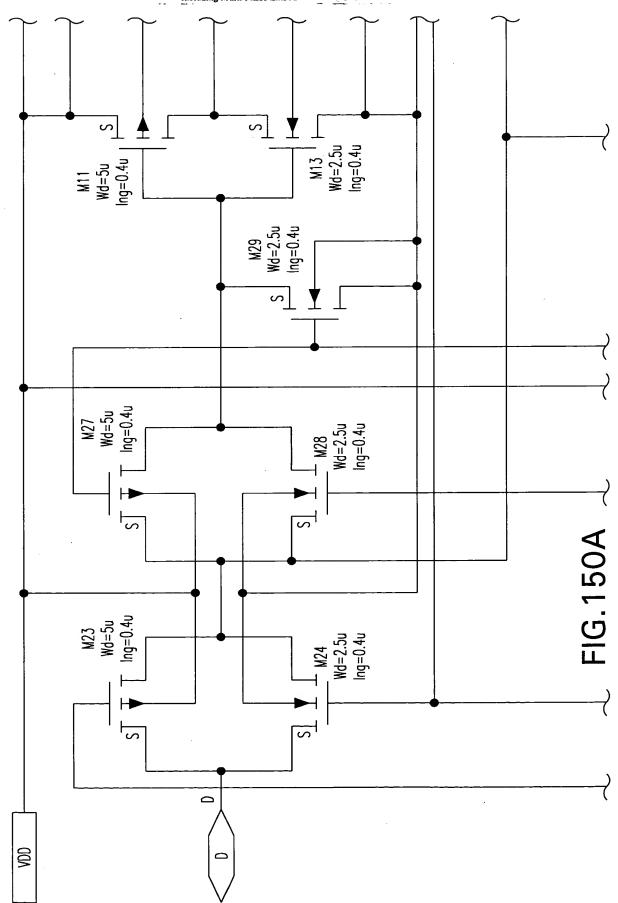
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Inventors: Sorrells et al.
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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

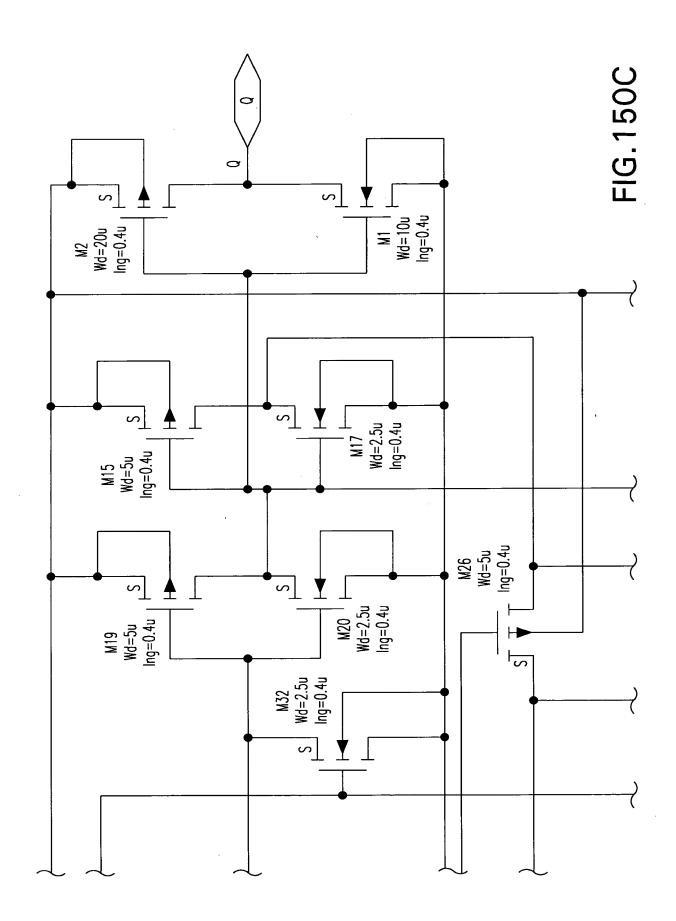


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Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

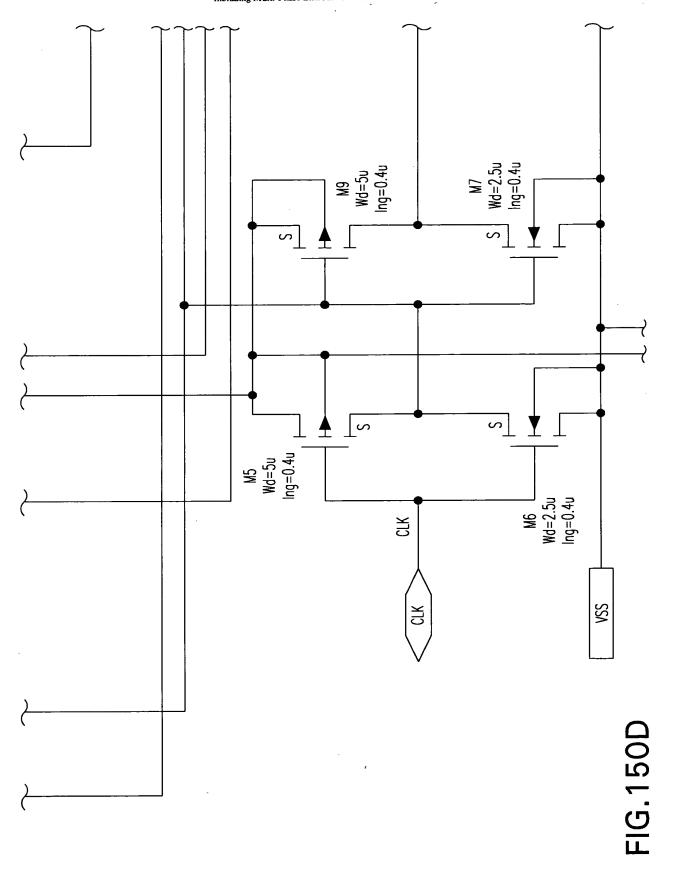


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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
Tel. No.: 202-371-2600 For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit FIG.150B M31 Wd=5u Ing=0.4u \_\_ M30 \_\_ Wd=2.5u Ing=0.4u S S M21 Wd=5u Ing=0.4u \_\_ M22 \_\_ Wd=2.5u Ing=0.4u S M12 Wd=5u Ing=0.4u M10 Wd=5u Ing=0.4u

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Inventors: Sorrells et al.
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For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

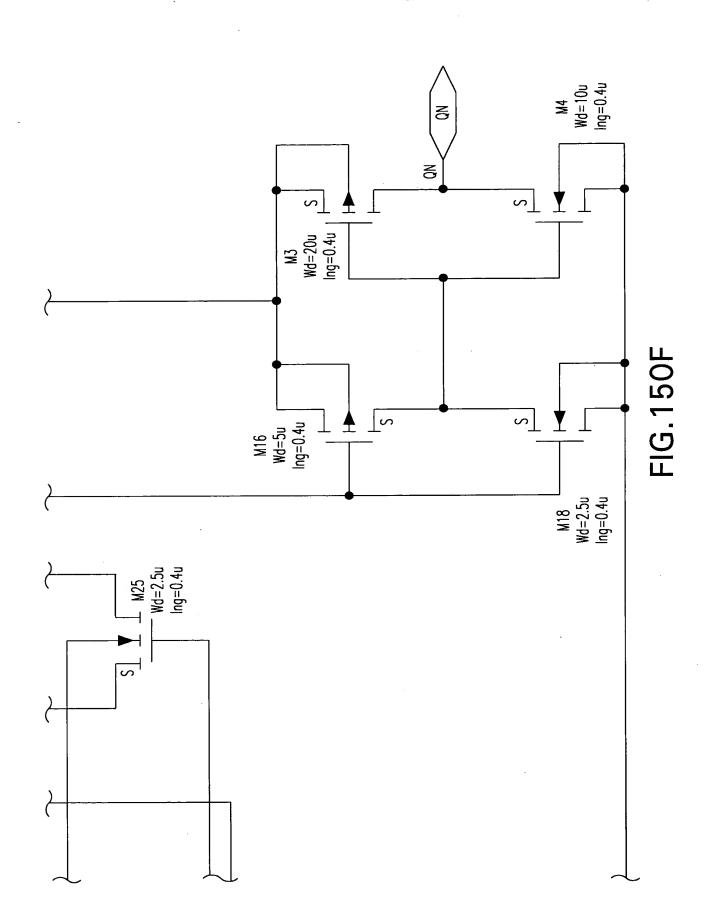


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Inventors: Sorrells et al.
Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit

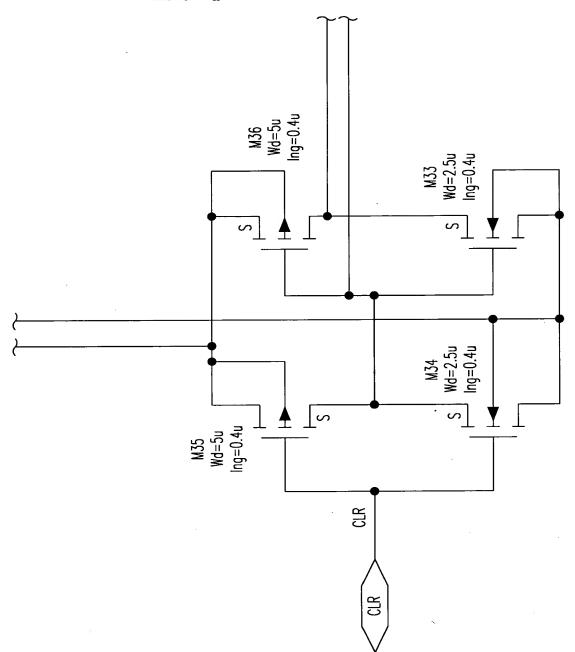
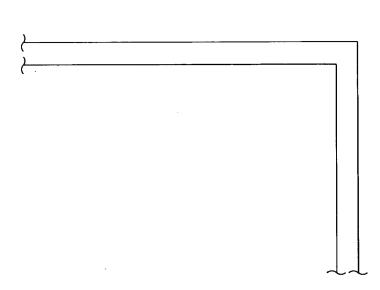
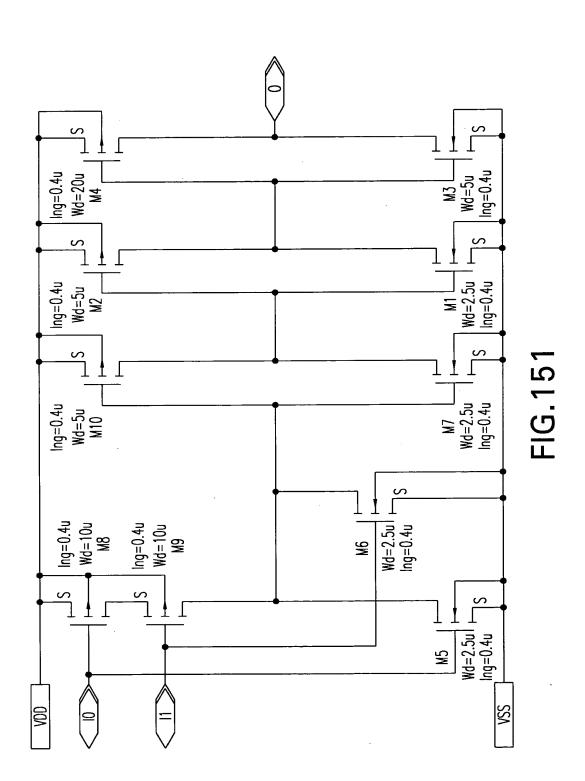


FIG.150G

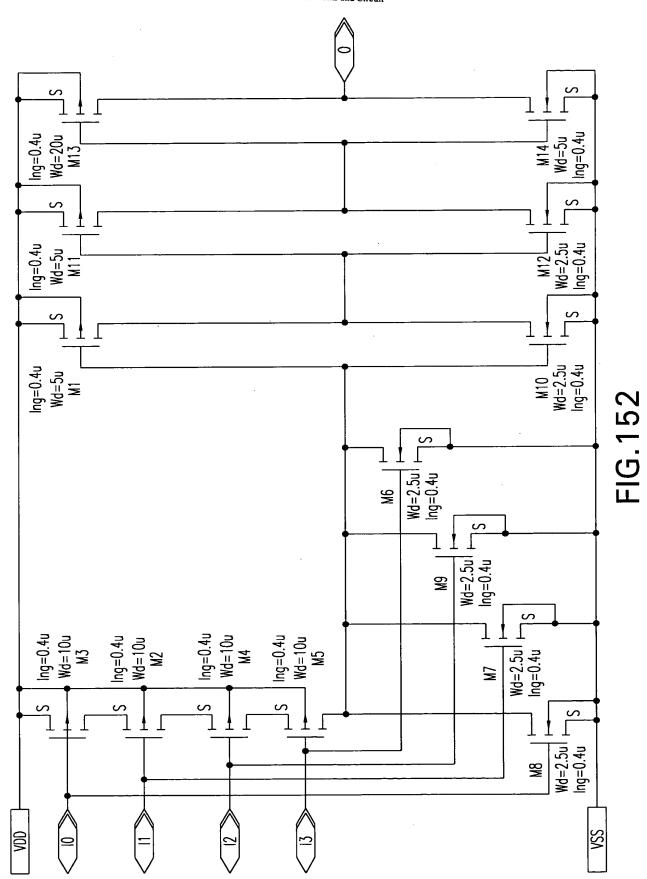
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Inventors: Sorrells et al.
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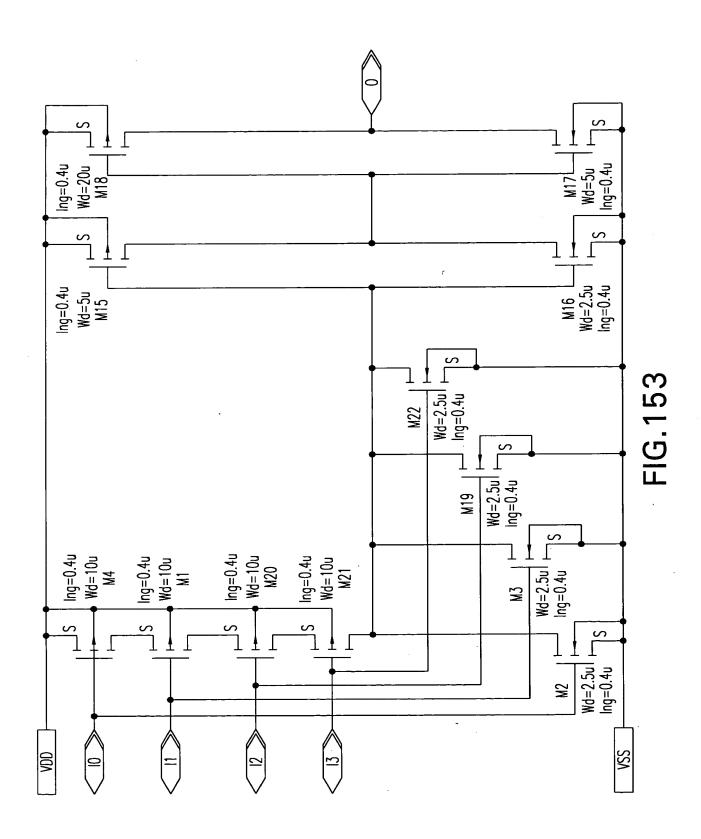


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Inventors: Sorrells et al.
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For: Wireless Local Area Network (WLAN) Using
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Including Multi-Phase Embodiments and Circuit



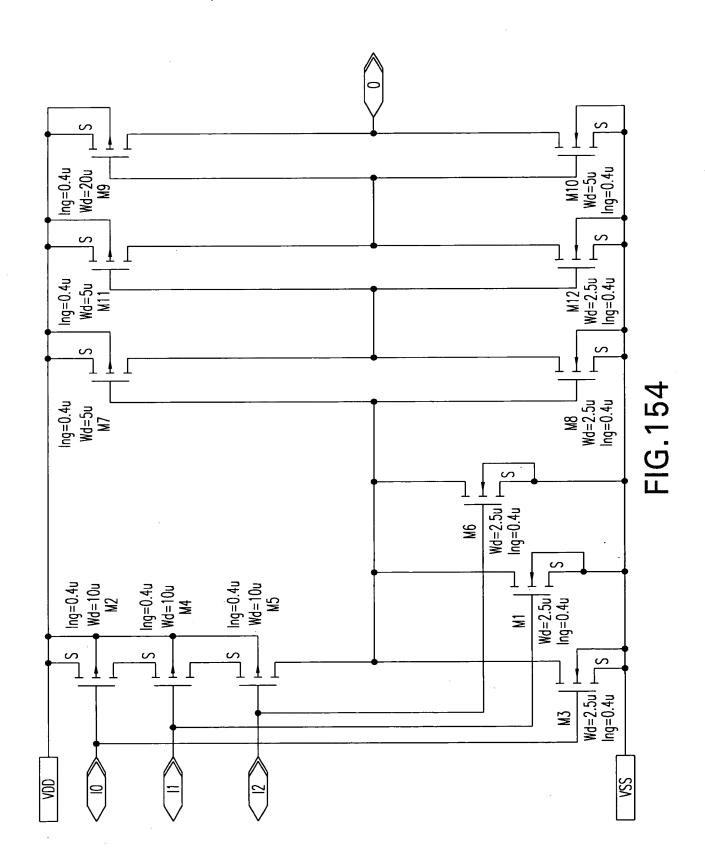
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Inventors: Sorrells et al.
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Including Multi-Phase Embodiments and Circuit

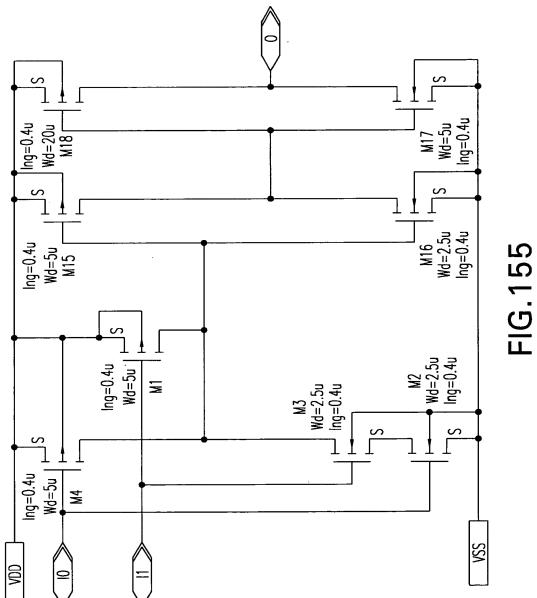


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Inventors: Sorrells et al. Tel. No.: 202-371-2600

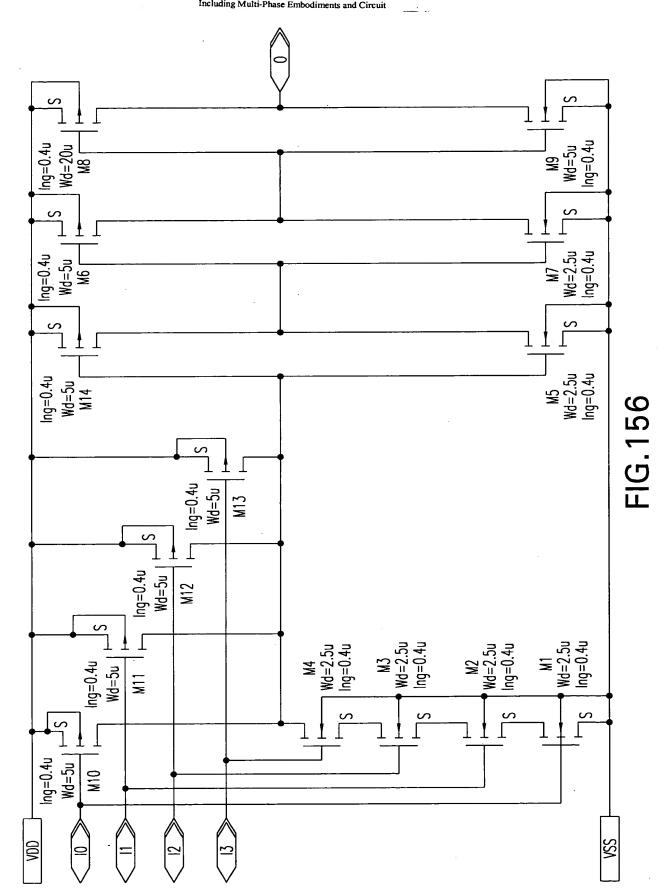
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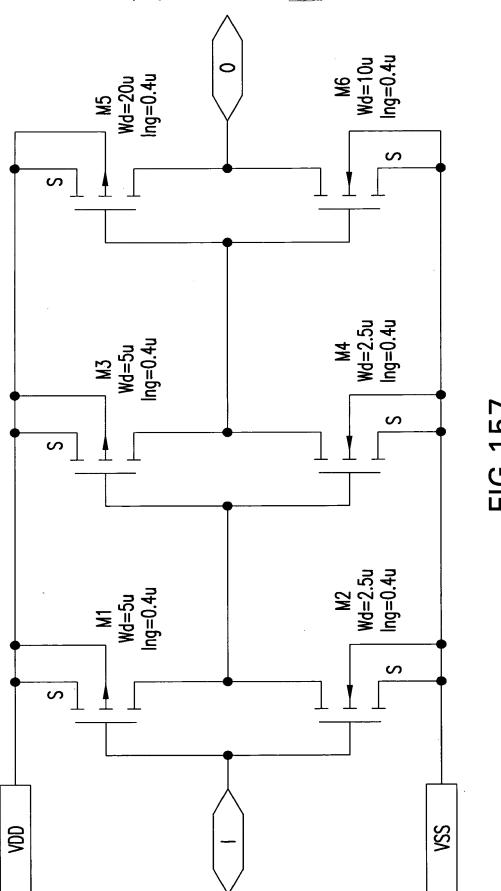
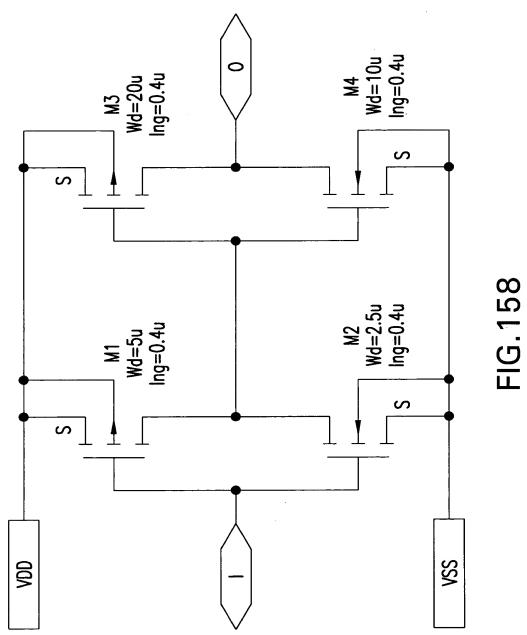


FIG.157

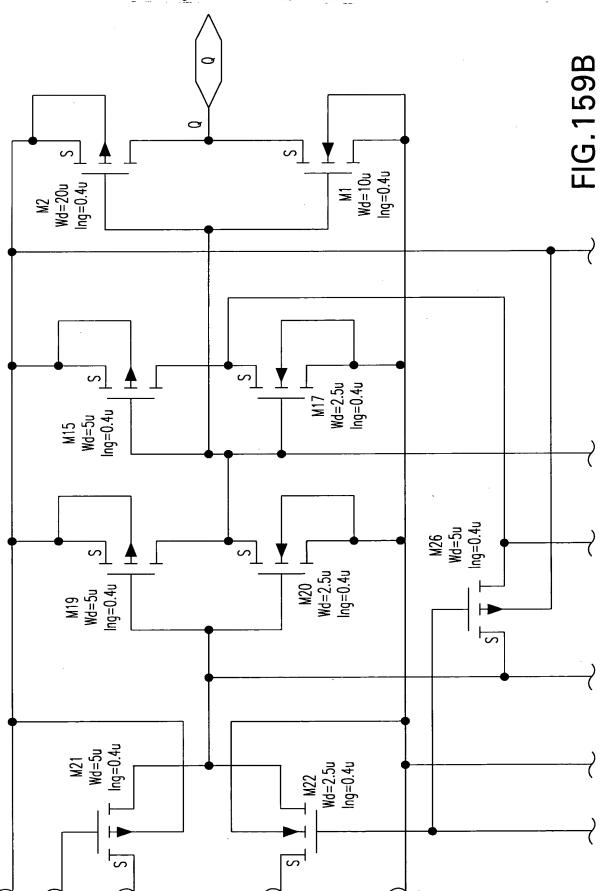
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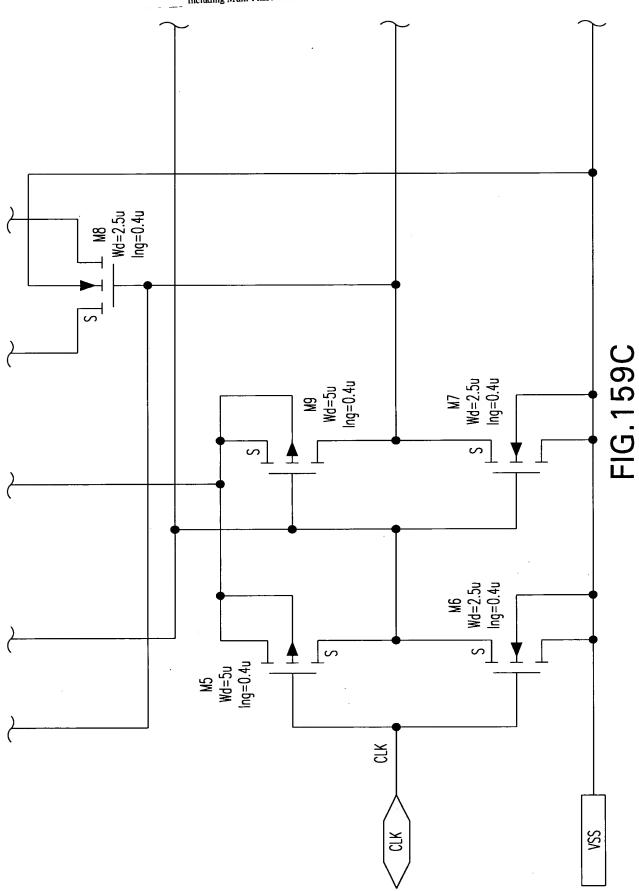
Inventors: Sorrells et al.
Tel. No.: 202-371-2600
For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit FIG. 159A M10 Wd=5u Ing=0.4u M14 | Wd=2.5u Ing=0.4u M12 Wd=5u Ing=0.4u S S M13 | Wd=2.5u Ing=0.4u M11 Wd=5u Ing=0.4u M23 Wd=5u Ing=0.4u M24 \_\_ Wd=2.5u Ing=0.4u S 9

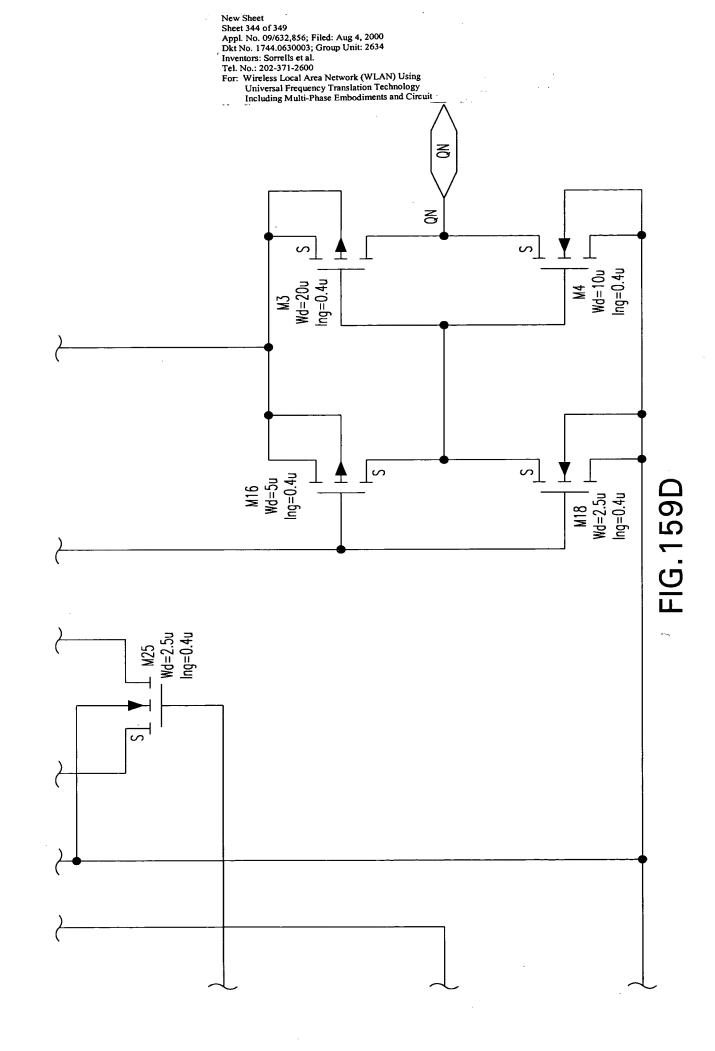
Replacement Sheet Sheet 341 of 349 Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.0630003; Group Unit: 2634

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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
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Appl. No. 09/632,856; Filed: Aug 4, 2000
Dkt No. 1744.0630003; Group Unit: 2634
Inventors: Sorrells et al.
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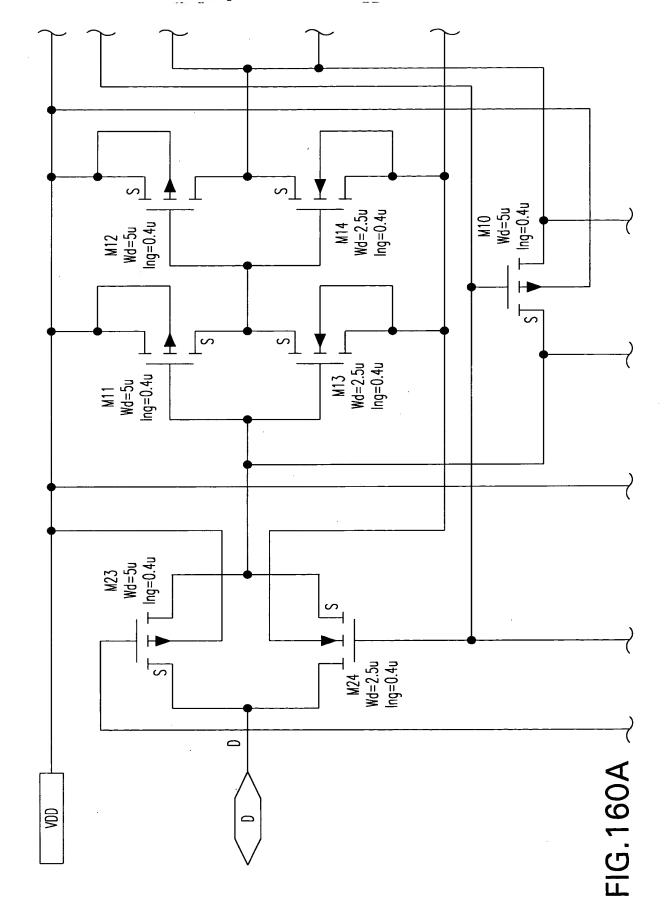
Replacement Sheet Sheet 345 of 349

Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.0630003; Group Unit: 2634

Inventors: Sorrells et al.

Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using Universal Frequency Translation Technology Including Multi-Phase Embodiments and Circuit



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Dkt No. 1744.0630003; Group Unit: 2634

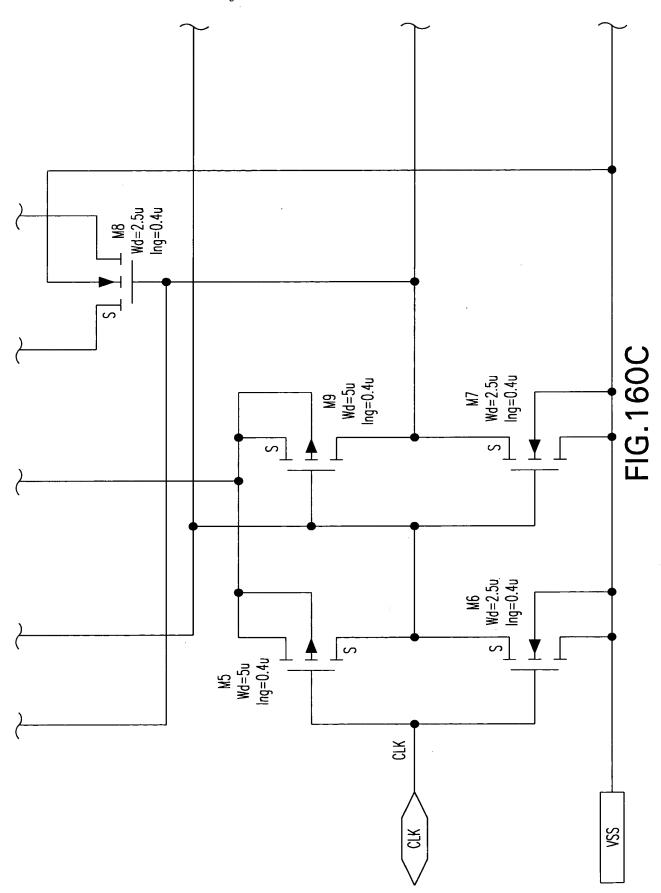
Inventors: Sorrells et al.

Tel. No.: 202-371-2600

For: Wireless Local Area Network (WLAN) Using
Universal Frequency Translation Technology
Including Multi-Phase Embodiments and Circuit M1 | Wd=10u Ing=0.4u M2 Wd=20u Ing=0.4u FIG.160B M17 Wd=2.5u Ing=0.4u M15 Wd=5u Ing=0.4u M27 Wd=5u Ing=0.4u M20 <sup>†</sup> | Wd=2.5u Ing=0.4u M19 Wd=5u Ing=0.4u S M21 Wd=5u Ing=0.4u L M22 Wd=2.5u Ing=0.4u S

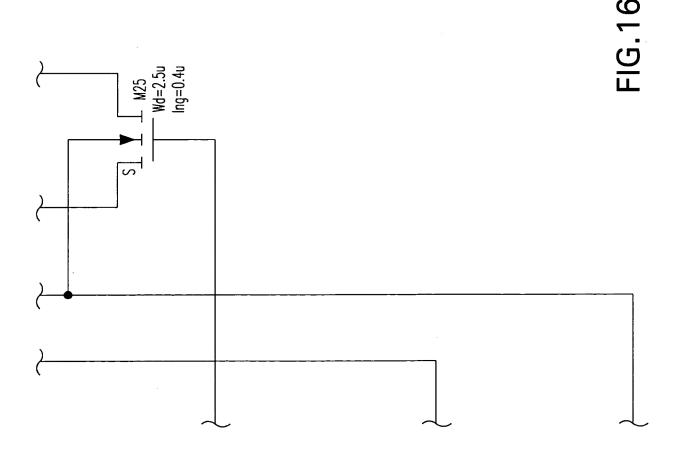
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Appl. No. 09/632,856; Filed: Aug 4, 2000
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Replacement Sheet Sheet 349 of 349 Appl. No. 09/632,856; Filed: Aug 4, 2000 Dkt No. 1744.0630003; Group Unit: 2634 Inventors: Sorrells et al. Tel. No.: 202-371-2600

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